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MONTANA OUTDOORS

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Our Point of View

So how do we treat visitors in Montana? With hospitality, mostly. Not all visitors are welcome though. Some are even despised or feared.

Chronic wasting disease or CWD is one visitor that is both feared and despised. First showing up in Montana in captive elk on an alternative livestock operation near Philipsburg, it has also been detected in similar operations in Oklahoma, Colorado, Wyoming, Nebraska, South Dakota, and Saskatchewan. The known infected animals in Montana were destroyed.

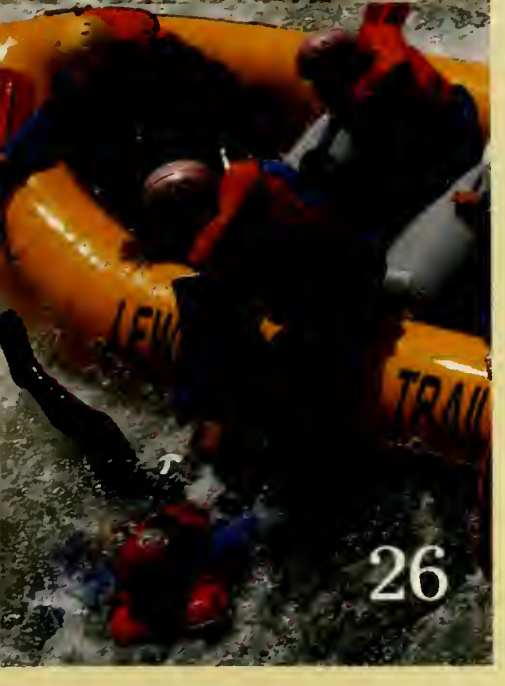
The disease is always fatal. It cannot be detected in live animals and no one knows how it spreads. Does this unwelcome visitor remain in Montana? Can it return? These are questions on many minds (see page 8).

Another visitor to Montana in recent years is really just returning after several decades of absence. Eradicated in the early 1900s because of its propensity to prey on livestock and wild game animals, the wolf had slowly re-established itself in northwestern Montana by the 1980s. Some were not satisfied with the speed of the return, so the federal government released Canadian wolves in Idaho and Yellowstone Park in the mid-1990s.

The wolf is a nearly mythical symbol of wildness to some. They claim it is the last missing link in the ecosystem. To others, it is a creature threatening a way of life, preying on elk, deer, and livestock. This visitor, treated with reverence and disdain, evokes an opinion from nearly everyone—opinions they quite willingly share.

Chronic wasting disease is one visitor that cannot be tolerated. In contrast, we will find a way to live with wolves, not as visitors, but as co-inhabitants of the state. Governor Racicot has asked a group of Montanans to move beyond the rhetoric and figure how we are going to do that (see page 20). The question many people are asking is whether we will be allowed to define the terms of our coexistence.

Pat Graham
Director, Montana Fish, Wildlife & Parks



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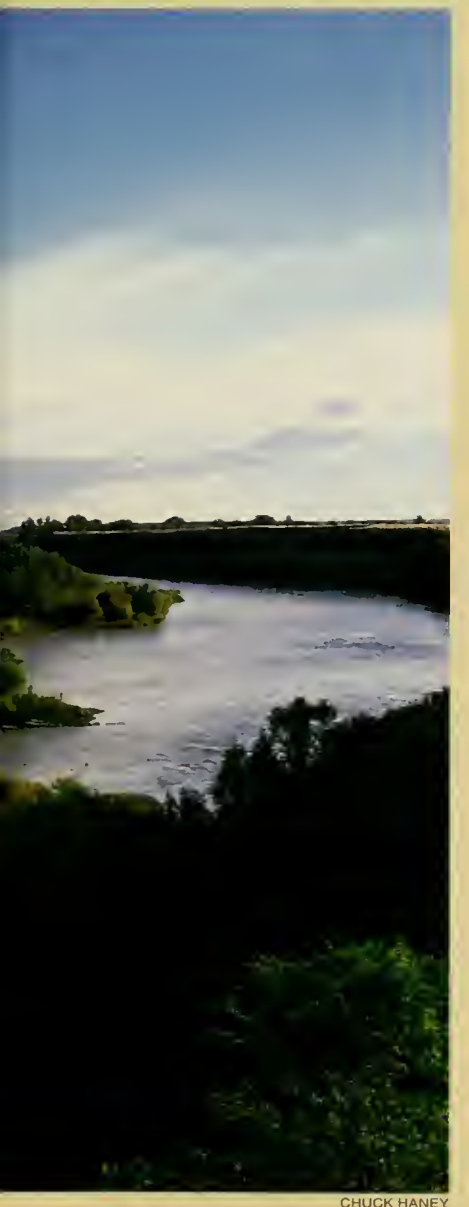
DONALD M. JONES

The lower Yellowstone River offers a relaxing blend of solitude, scenery, and wildlife.

Above: **The Yellowstone winds serenely through lush bottomland near Glendive.**
Right: **A towering cottonwood frames the river at Pompey's Pillar east of Billings.**

Riding the Roche Jaune

by Alan Charles



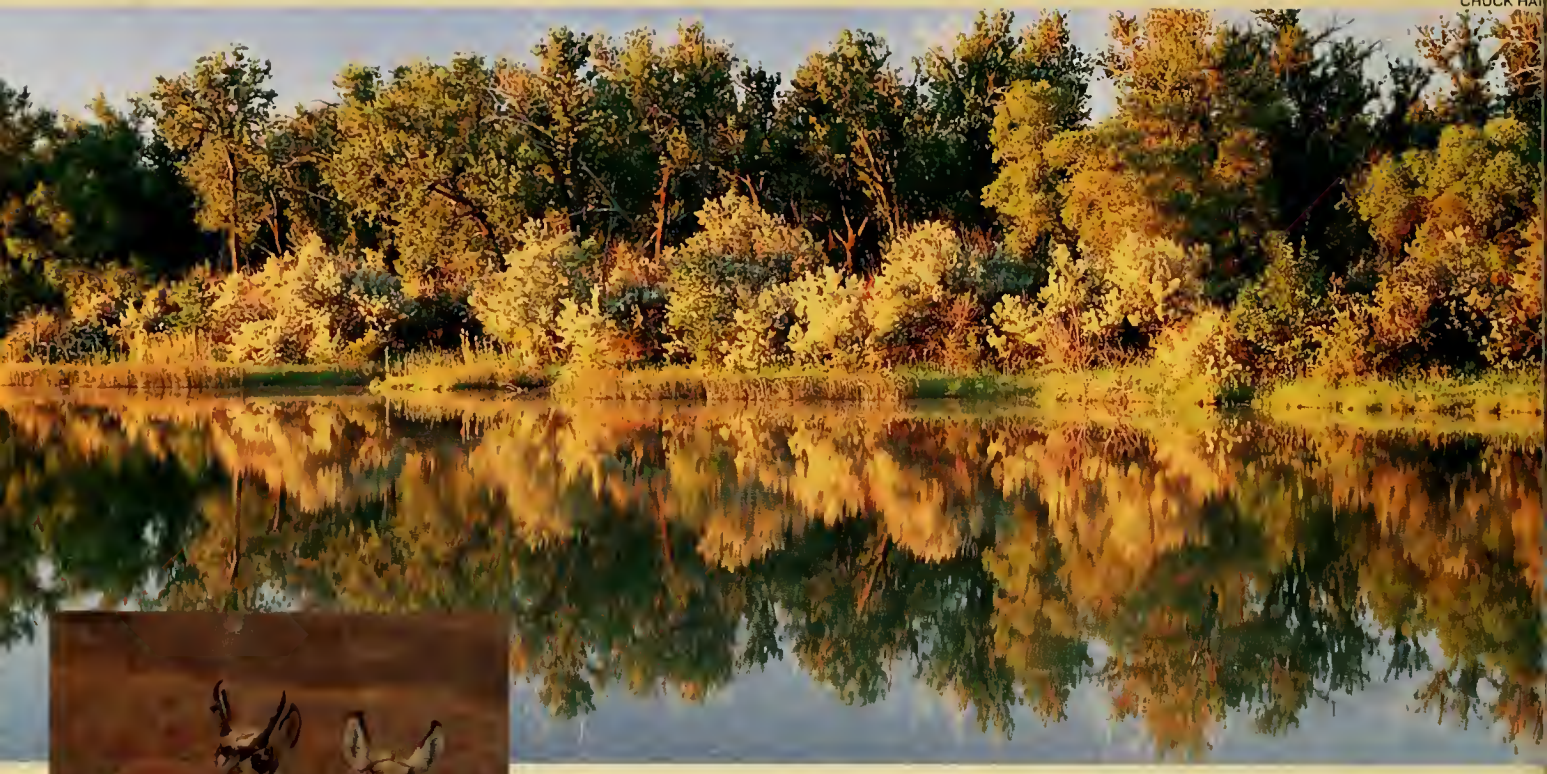
CHUCK HANEY

The Crow Indians called it *Iichiilikaashaashe*, or Elk River. Fur traders in the 1800s called it "Roche Jaune," meaning yellow rock. I call it peaceful, and consider the lower Yellowstone River one of Montana's most enjoyable river floats.

In a time of crowding and conflict on many of Montana's rivers, the quiet waters of the Yellowstone threading peacefully through braided channels of eastern Montana prairie are a delight for floaters in search of solitude.

Many people arbitrarily divide the 554-mile-long Yellowstone River into three segments: upper, middle, and lower. The upper Yellowstone, stretching 113 miles from the river's high-country origins near the Wyoming border down to Big Timber, is a coldwater stream famed for its flashy trout and mountain vistas. The middle Yellowstone, running 104 miles from Big Timber to the Huntley irrigation diversion dam east of Billings, blends west with east; mountains tower in the distance as the river widens and the waters warm. The lower Yellowstone begins at Huntley, about

GARY LEPPART



BARBARA THOMAS

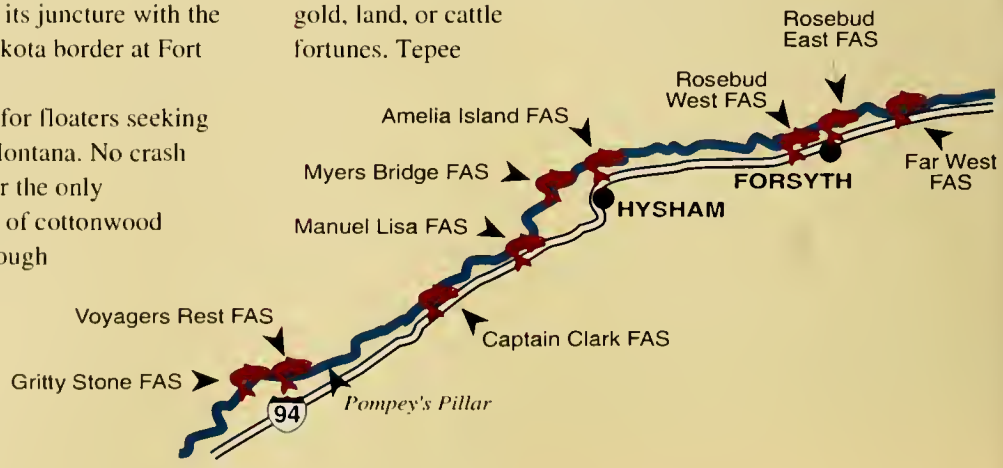
Left: **Antelope abound in prairie habitats adjacent to the river.** ***Above:*** **Elk Island Wildlife Management Area near Savage provides a boat launching site and opportunities for hunting, fishing, and wildlife viewing.**

20 river miles upstream from Pompey's Pillar, where on July 25, 1806, William Clark scratched his initials in the sandstone outcropping and sailed downriver in a cottonwood canoe. This section flows east for 337 miles to its juncture with the Missouri River just inside the North Dakota border at Fort Buford.

This lower stretch of river is perfect for floaters seeking the sights and sounds of summertime Montana. No crash helmets or wet suits are needed here, for the only whitewater you'll find might be carpets of cottonwood seeds caught in a backwater eddy. Although kayaks or canoes can certainly be used to float this prairie expanse of Yellowstone River, I prefer a raft or medium-sized boat. A motor is sometimes useful to fight headwinds or to motor back upstream.

The best time to float the lower Yellowstone is from mid-July through early October. In May and June, snowmelt from mountain headwaters and tributaries can bloat the river into a muddy, dangerous torrent of floating debris and unpredictable currents. But by the middle of July the river has calmed and the silt has settled; like a snake slithering through sand, the river meanders quietly through whatever new channels the spring floods have etched across the broad floodplain.

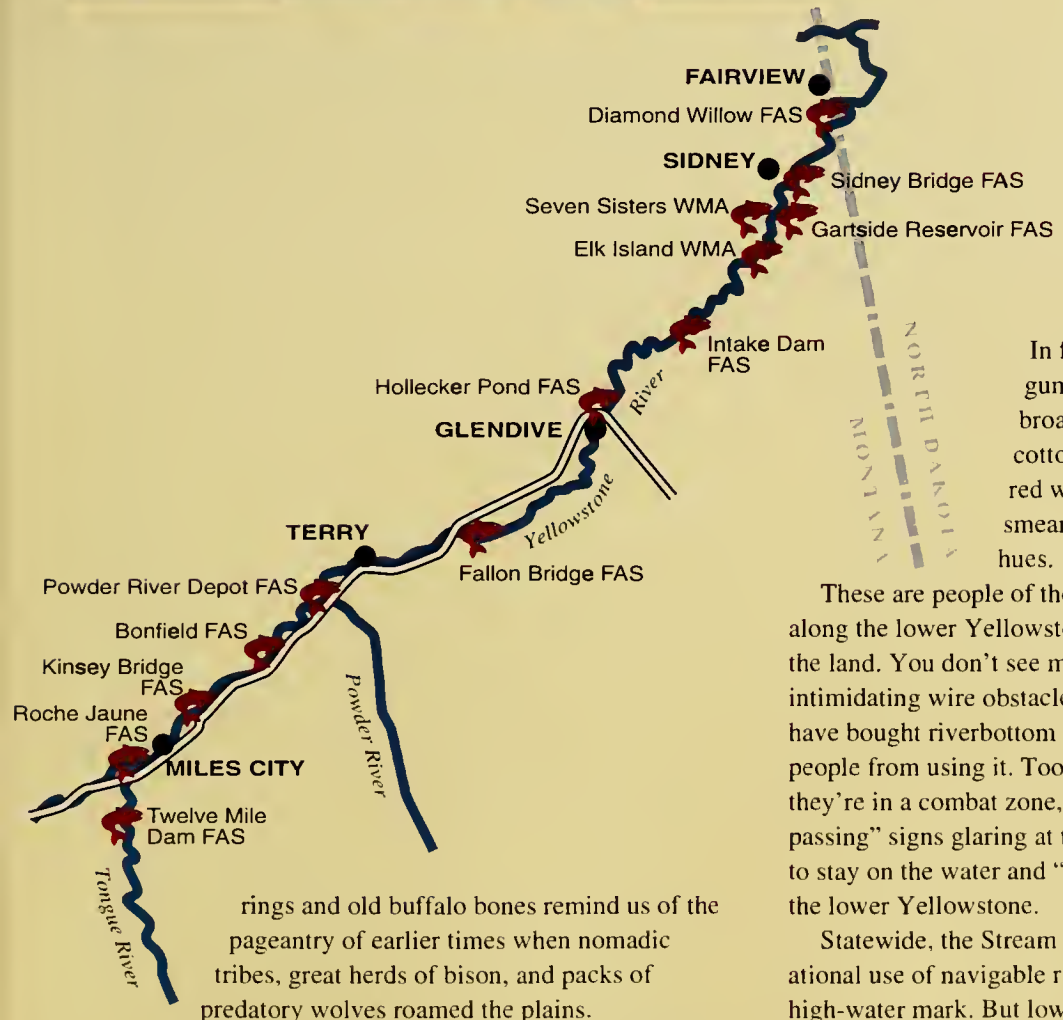
This is frontier country, without glitzy signs and neon lights. Eastern Montana is rough-side-out prairie, with scars still visible from being pioneered for gold, land, or cattle fortunes. Tepee



GARY LEPPART

GARY LEPPART

History buffs can retrace the steps of early explorers, Native Americans, soldiers, and homesteaders in the Yellowstone Valley.



rings and old buffalo bones remind us of the pageantry of earlier times when nomadic tribes, great herds of bison, and packs of predatory wolves roamed the plains.

The riverbottom land is tamer now, cropped in corn, sugar beets, and alfalfa in many places, but still only sparsely inhabited. Although Interstate 94 parallels the lower Yellowstone for much of its journey through eastern Montana, its presence rarely intrudes on people floating the river.

In fact, the river winds through rugged gumbo bluffs or wends its way among broad channels lined with towering cottonwoods, where blue-tinged sage and red willows splash color on a palette smeared with Charlie Russell's favorite hues.

These are people of the earth, these ranchers and farmers along the lower Yellowstone, folks who make a living from the land. You don't see many of the bright orange signs and intimidating wire obstacles that usually signify people who have bought riverbottom land precisely to exclude other people from using it. Too often today, river floaters feel they're in a combat zone, with trophy homes and "no trespassing" signs glaring at them from the bank, warning them to stay on the water and "pass on by." But it's not like that on the lower Yellowstone.

Statewide, the Stream Access Law allows public recreational use of navigable rivers and streams up to the ordinary high-water mark. But lower Yellowstone floaters who take time to scout ahead and visit with landowners can often gain permission to camp or temporarily stop on private ground, sometimes even arranging to launch or pull out their boat at points between established fishing access sites. This is country where courtesy and mutual respect between

GARY LEPPART

DONNIE SEXTON

Above: **Yellowstone River agates are eagerly sought by rockhounds.** ***Right:*** **Housed in a turn-of-the-century bank building, the Prairie County Museum in Terry features horse-drawn carriages, restored offices, and historical photographs.**

recreationists and landowners still pays big dividends.

What is it about the lower Yellowstone that merits attention? It's the size, the silence, the solitude, and magnificence. It's the fact that this is the longest free-flowing (undammed) river in the lower 48 states. It's the raw country and the way things that "used to be" still are. It's fresh-bared bison skulls staring silently from caved-off gumbo cutbanks and sharp-edged arrowpoints lying exposed on a sandy shore. It's the prehistoric and rare pallid sturgeon and the 80-pound paddlefish dubbed "Montana marlin" by anglers seeking a big-fish challenge. It's the multitude of wildlife that abounds along the river's banks—the mule deer and whitetails, antelope and beaver, geese and pelicans, raccoons and turkeys, even an occasional otter.

In 1806, as he headed east on his return trip through Montana, William Clark noted in his journal: "...for me to mention or give an estimate of the different Species of wild animals on this river particularly Buffalow, Elk Antelopes & Wolves would be increditable. I shall therefor be silent on the subject further. So it is we have a great abundance of the best of meat." Two hundred years later, the herds of bison no longer roam adjacent to the river, and the wolves that followed them are also gone from the prairie. But antelope are probably more numerous now than they were then, and numbers of geese and deer are also probably greater than those seen by early travelers, due in part to riverbottom agricultural crops.

The naturalist who floats the lower Yellowstone would do well to keep a journal, to carefully observe animal tracks on sandbars, and to watch the willows for signs of wildlife. The floating pace is slow, and especially during cool morning and evening hours when wildlife is more active, it's amazing just how many different species of wildlife can be seen.

It's common to witness broods of Canada geese, mallards, and wood ducks resting on islands or swimming ahead in flotillas. Great blue herons gather in cottonwood rookeries, and eagles and ospreys nest in the high cliffs and trees along the river. Pheasants, turkeys, and a myriad of songbirds add color and sound to the riverbank bushes, making a good pair of binoculars a must.

Opportunities abound for anglers as well—the lower Yellowstone is home to nearly 45 species of warmwater fish. While an occasional trout is caught in the lower river, fishermen most often encounter walleye, sauger, smallmouth bass, shovelnose sturgeon, and channel catfish.

Discriminating anglers can focus their attention on specific kinds of fish and do quite well. The river offers a variety of water conditions and fish habitats: riffles at the lower ends of islands, long stretches of slow-moving water, and deep holes with undercut banks and sunken logs. Summer can be hot in eastern Montana, so it's normally during the cooler early morning and late evening hours that fish move into the shallows. But midday can be productive for anglers plumbing the depths of deep holes and fishing lures or baits along rocky banks and stump-studded shorelines.

For flyrod purists who wince at the thought of whiskery catfish or prehistoric sturgeon, I recommend a six-weight flyrod and a small egg fly or nymph, and suggest casting to the big gold-colored "logs" lying close against the bank. Hook one of those 10- to 15-pound carp and you'll gain a new respect for warmwater river fish. Or tie on a flashy little Woolly Bugger or weighted streamer, strip it upstream through a backwater eddy, and you'll have a goldeye smack it nearly every time, imitating saltwater tarpon in aerial acrobatics. These same goldeyes offer excellent surface action for dry flies matched to frequent insect hatches.

Artists or photographers who embark on a summer float of the Yellowstone are never without inspiration. Each turn of the river reveals something new—a canopy of cottonwoods shading a newborn fawn, a fleet of pelicans floating silently ahead, a thicket of fragrant wild rosebushes speckled with goldfinches or wild canaries, or simply the constantly changing wide-open sky—one moment a curtain of soft-shaded pastels, next a blue ocean studded with high puffs of cottony cloud, or perhaps next a wild sea of surging thunderheads and wind-whipped waves of fast-moving rainshowers.

For history buffs, an extended float trip can easily be planned with stops scheduled for exploring past events. A number of old forts dating back to the days of the fur trappers exist along the lower Yellowstone. While most of these are located on private land, and many offer little in the way of visible structures, the notion of standing where past travelers once stood is intriguing. For many people, myself included, the absence of tourist-type attractions makes the historical connection more vivid.

The few towns along this stretch of the Yellowstone River all offer historical attractions of their own. Hysham, Forsyth, Rosebud, Miles City, Terry, Fallon, Glendive, and Sidney are all rooted in the past—they sprang up along this great river for specific reasons. Some have captured that history in museums, like the famous Range Riders Museum in Miles City or the wonderful museum in downtown Terry, while others reveal history more subtly in the faded structures of town buildings and the quiet voices of local citizens. History surrounds the river traveler who searches it out, whether it's the memories of steamboats once stranded on certain shoals, river-crossings used by early cattle drives and later horse gatherings, campsites of Native Americans, fur trappers, cowboys and cavalry troops, or grand engineering feats of railroad architects and early irrigation project designers.

It's all there, and more, for the floater who samples the lower Yellowstone River. A float trip can be as simple or as complicated as you care to make it. Whether it's a half-day float from one spot to another, doing nothing more than reveling in the peacefulness of smooth, quiet water—or a week-long trip with scheduled stops, pre-planned campsites, and organized agendas—this stretch of water offers unlimited options. A variety of printed guides are available to help with planning a trip (see sidebar).

While the lower Yellowstone is typically quiet water easily floatable by neophytes, some precautions are in order. Several irrigation diversion dams are located along this portion of the river, some of which require portaging, so floaters should consult maps and contact local sources to learn what is required to negotiate these obstacles.

Rattlesnakes, wood ticks, and poison ivy may be encountered along the river, so travel ashore should be done with caution. Mosquitoes and flies may be present, so pack some insect repellent. Weather can be unpredictable, with sudden thunderstorms, high winds, and severe heat common. Proper clothing and protection against rain and sun is always prudent. A safety kit provisioned with first-aid equipment, signaling device, flashlight, space blanket or shelter of some kind, and fire-starting materials should always be carried, along with required flotation equipment for all people aboard.

Floaters in early fall can often combine scenery and fishing with hunting opportunities. Waterfowling can be excellent along the river, but some areas are closed to hunting on or adjacent to the river (see regulations for specifics). But where hunting is authorized, sandbars and islands offer superb jumpshooting and occasional decoying opportunities for Canada geese and ducks. Turkeys, pheasants, and deer, especially whitetails, are also abundant along the riverbottom, but landowner permission is needed to hunt on privately owned riverbottom lands or islands.

Whether it's summer or fall, fishing or floating, taking pictures or hunting agates, or simply riding along silently in the slow-moving current—the lower Yellowstone is my favorite river to float. The tangible touch of raw earth and big sky, shadowy whispers of tribal villages, fading relics of the great buffalo herds and homesteading pioneers, the bark and cry of lonesome prairie coyotes, and the star-studded sky stretching forever overhead—this and more awaits the traveler who chooses to travel away from the crowds, on the lower Yellowstone, heading east through Big Sky Country. ■

Guidebooks and Maps

Paddling Montana, by Hank & Carol Fischer. Falcon Publishing, P.O. Box 1718, Helena, MT 59624. (800-582-2665).

Floating and Recreation on Montana Rivers, by Curt Thompson. P.O. Box 392, Lakeside, MT 59922. (800-582-2665).

River Safety: A Floater's Guide, by Stan Bradshaw. Greycliff Publishing Co., P.O. Box 1273, Helena, MT 59624-1273. (406-443-7332).

Montana Wildlife Viewing Guide, by Hank & Carol Fischer. Falcon Publishing, P.O. Box 1718, Helena, MT 59624. (800-582-2665).

Chronic Wasting Disease

by Bruce Auchly

No topic burns hotter right now in Montana wildlife circles than chronic wasting disease (CWD). People become near-apoplectic when discussing it. That's because CWD is a gruesome, even cruel, disease that attacks the brains of deer and elk. Infected animals literally waste away to skin and bones. Death comes harshly, taking up to a year.

CWD also sears public debate because it involves game farms—now called alternative livestock ranches by an act of the 1999 Legislature. Last year, scientists found Montana's first CWD case at an alternative livestock operation near Philipsburg, southeast of Missoula. "How did it get here?" asks Pat Graham, Montana Fish, Wildlife & Parks (FWP) director. "Is it in any other alternative livestock facility? Until we can answer that convincingly, testing will need to be done."

FWP shares responsibility with the Department of Livestock for monitoring the alternative livestock industry. FWP looks for diseases in wildlife outside the fences, Livestock keeps tabs on the animals inside.

So far, the disease has not shown up in Montana's free-ranging deer and elk, though FWP continues to test for it. Because no test exists for live animals, FWP workers the last three hunting seasons have collected brain tissue samples from more than 1,000 deer and elk at game checking stations. Results to date have been negative. That allows researchers to say with statistical confidence that CWD is not in the state's wild deer and elk population. With an estimated one million ungulates in the state, FWP biologists needed to test 1,000 animals to have a 95 percent confidence level.

Besides random checking, FWP workers in late January killed 44 free-ranging deer and one elk near the Philipsburg operation and an alternative livestock ranch near Hardin. Brain tissue samples were checked for CWD. All were negative. Biologists and wardens also targeted nine deer and elk that displayed symptoms suggestive of CWD—emaciated animals that appear listless, with blank facial expressions, excessive salivation, lowered heads and, in some cases, hyperexcitability and nervousness. Test results were negative. "We do not want to live with the disease, nor should we have to," says Keith Aune, FWP's Wildlife Laboratory supervisor in Bozeman.

Geographically, the disease has spread more rapidly through the alternative livestock industry than in free-ranging deer and elk. CWD has been confirmed in captive elk in Canada, South Dakota, Nebraska, Colorado, Oklahoma, and recently Montana. Captive elk from infected herds have been shipped to operations in Idaho, Iowa, Illinois, Missouri, Texas, and Wisconsin.

The alternative livestock industry in Montana consists of about 85 ranches. These operations have 4,000 animals, of which 3,600 are elk. The remainder are deer, muskoxen, reindeer, bighorn sheep, mountain goats, mountain lions, and bears.

CWD has persisted for decades in captive and free-ranging elk and deer in Colorado and Wyoming. In the northeast corner of Colorado and southeastern Wyoming scientists first discovered the disease, first named it, and first diagnosed it. Yet much of the disease remains a mystery. How is it transmitted? Where did it come from? Which ungulate population had it first, captive or free-ranging? Can it cross species barriers and infect humans or livestock?

"Nobody knows. Nobody knows," laments Terry Kreeger, supervisor of the Veterinary Services Branch of the Wyoming Game and Fish Department. In the wild the disease has spread slowly in Wyoming. "Last year we found CWD a couple of miles north and east of the endemic area," Kreeger says. That area consists of about five counties.

Even with the incremental spread of CWD, the infection rate has remained low. Where CWD occurs in Wyoming, the deer infection rate is 1 to 6 percent. In Colorado's CWD area the infection rate averages 3 percent, though in one hunting unit it runs to 15 percent. In both states the infection rate in elk is 1 percent or less.

CWD belongs to a family of diseases called transmissible spongiform encephalopathies (TSEs). Transmissible means the disease can be passed from one individual to another. Spongiform comes from the mark of the disease—holes left in the brain so

that it resembles a sponge. Encephalopathy comes from two Greek words: *enkephalos* for brain and *pathos* for suffering. TSEs kill by attacking nerve cells in the brain, leaving a trail of holes. So many holes, in some cases, that the brain collapses on itself. TSEs hit the cerebellum, the part of the brain that controls balance and coordination of voluntary movements. No cure exists. TSEs are always fatal.

Until recently it was not known how TSEs managed to kill while evading the immune system. Bacteria don't act that way, neither do viruses. The current theory, which led to a Nobel Prize for Medicine in 1997, postulates that a new type of infectious agent, a prion (PREE-on), causes TSEs. It's believed TSEs strike in one of three ways: food contaminated with prions,

Chronic wasting disease—a fatal brain disease of deer and elk—has been confirmed in captive elk in Montana.

JEFF HENRY

genetically, or plain bad luck, known as sporadic TSE.

The most infamous TSE is bovine spongiform encephalopathy (BSE), also called mad cow disease, which ravaged the British beef industry. One human TSE is an extremely rare ailment named after the European doctors who first described it, Creutzfeld-Jakob disease (CJD). Scientists believe that mad cow disease in Britain has led to a new variation of CJD, primarily different from the previously recognized CJD in that the new version attacks young people. The older form mainly strikes the middle-aged and elderly and is literally a one-in-a-million disease. Another TSE is scrapie, which is found in domestic sheep and goats. A mink TSE even exists, found only in mink ranch operations.

In Montana, the spotlight first lit on CWD in June 1998 when an elk on an Oklahoma game farm was diagnosed with the disease. The animal apparently came from the David Kesler alternative livestock ranch near Philipsburg, Montana; however, it was not known when the animal contracted the disease.

After the first Oklahoma elk died, Kesler's facility was quarantined. In the three years before that action, Kesler had shipped elk to an alternative ranch near Hardin, as well as ranches in Oklahoma, Idaho, and Missouri. A lone elk sent to Missouri later went to Iowa.

In March 1999, a second captive Oklahoma elk died; it was positively traced to Kesler's. Last fall, an elk died at Kesler's, and an autopsy confirmed CWD. That led state officials to test the remaining 83 captive animals. Autopsies confirmed three more CWD cases.

Four months after the Oklahoma-Montana CWD tie was confirmed, Montana's livestock department issued a 12-month "surveillance for import" order. That meant all deer or elk destined for Montana had to be under surveillance for CWD symptoms 12 months before importation, and the animal must have lived within a captive herd where no CWD had been diagnosed for 12 months. That order changed late last year to a 2-year surveillance period after a CWD case was confirmed at Kesler's. Finally, in March of this year, Livestock went to a 5-year prior CWD surveillance—a move that has upset the alternative livestock industry.

"I think it's gone overboard," says Jack Schubarth, past president of the trade group Montana Alternative Livestock Producers and the owner of an alternative operation in Vaughn.

"The increase in the length of time is based on the most recent scientific evidence available from known experts in the field of CWD," says Dr. Arnold Gertonson, state veterinarian. "Montana's CWD rules have been significantly stricter than those of Colorado where the disease has been

P. RYAN CLARKE

FWP will continue testing for CWD in deer and elk during this fall's hunting season.

Hunter

Chronic wasting disease has arrived in Montana. Late last fall, three elk were diagnosed with the fatal brain disease at an alternative livestock ranch in Philipsburg, southeast of Missoula. No one knows how it got here. No one wants CWD to spread to other alternative livestock operations or to the state's free-ranging elk and deer. And everyone wants to help. Now they can.

During this fall's hunting season, Montana Fish, Wildlife & Parks will concentrate its CWD surveillance in the Philipsburg area. Although the details haven't been worked out yet, FWP will ask hunters who receive deer and elk permits in hunting districts near Philipsburg to consider donating the heads of any animals they take. Scientists can only test for the presence of CWD by taking brain tissue samples. No test exists for live animals.

known to exist for the past 20 years, and stricter than those recommended by the U.S. Animal Health Association."

When news of CWD's discovery in Montana became public, groups on both ends of the political spectrum squabbled over who was at fault, with FWP and Livestock caught in the middle. Folks opposed to the alternative livestock industry claimed the industry was endangering the state's deer and elk. "The Montana Wildlife Federation considers game farms to be a major threat to the future health of Montana's native big game herds," the Federation states on its web page.

"We don't want diseases like CWD and tuberculosis in the wild," Graham says, "any more than the livestock industry wants brucellosis in their cattle."

Those in the industry countered that they are good neighbors and legitimate business people who bring an economic boost to the state. Some even opined

COLEEN O'ROURKE

A helicopter transports a wild elk killed near a Philipsburg alternative livestock ranch to a necropsy site for tissue sample collection. The elk tested negative for CWD.

Alert

CWD kills deer and elk by attacking nerve cells in the brain. No one knows if CWD can be naturally transmitted to domestic wildlife, though tests are underway around the country.

It's also unknown if CWD affects humans. But no cases have turned up in Colorado or Wyoming where the disease has existed in free-ranging deer and elk for years. Nonetheless, hunters should take a few commonsense precautions. Don't shoot obviously sick animals. Avoid handling the brain. Don't cut into the spinal cord. Bone out the meat. Wear rubber or latex gloves when field dressing an animal, and wash up afterwards. These are all safety measures each hunter should take anyway, CWD or no CWD.

Because of heightened concern about CWD, we encourage people who have seen a free-ranging deer or elk acting abnormally to report it to a local wildlife biologist, game warden, or any FWP regional office. People should not, however, kill wildlife out of season, even if the animal is in poor condition or showing abnormal behavior. It's illegal and the animal may not have CWD.

Symptoms commonly associated with CWD-infected animals include one or more of the following:

- Poor or emaciated body condition.
- Lethargy or no fear of humans.
- Excessive salivation or drooling.
- Increased drinking and urination.
- Slight tremors of the head.
- Uncoordinated walking or running.
- Fawns and calves will not show symptoms.

Certainly not all animals displaying any of these symptoms will have CWD. Only laboratory tests can confirm the disease.

that CWD probably came from wild elk and deer, not from captive stock. "This was first a wild elk and deer disease," Schubarth says.

"That's all speculation," Aune says. "There's never been any evidence."

The Legislature has dictated the two state agencies must monitor the alternative livestock industry. FWP has jurisdiction over licensing, reports, record-keeping, exterior fencing, removal of game animals, and unlawful capture of game animals. Livestock supervises marking of animals, transportation, importation, quarantine, hold orders, interior facilities, and health.

> "We don't want diseases like CWD and tuberculosis in the wild any more than the livestock industry wants brucellosis in their cattle."

Both departments can inspect and enforce within their areas of authority.

Cost is a contentious issue with the anti-alternative crowd. In fiscal year 1999, which ended June 30, 1999, FWP spent $190,000 to monitor alternative livestock operations. Revenue from permit and license fees brought in $16,000, half of which went to Livestock. Fees are set by the Legislature, not the FWP Commission. "The question is how much do we spend of sportsmen's dollars?" Graham asks. "The Legislature has not raised industry fees to cover the costs."

From the other side, the alternative livestock industry says FWP is the wrong agency to enforce any regulations dealing with livestock issues. Graham disagrees: "If not us, then who? Who has the expertise other than FWP when it comes to wildlife issues? But we have to be objective. People would not trust an agency with permitting authority if they thought that agency was out to eliminate that industry."

Following the Oklahoma-Montana CWD connection, FWP and Livestock agreed to carry out a plan to determine if CWD was present in Montana. Measures included testing of free-ranging elk and deer as well as captive animals. FWP was to verify if it was in the wild. Livestock adopted rules to test and regulate the importation of animals to reduce the risk of introducing CWD into Montana. Prevention became the goal. "We want to prevent the disease from getting in the wild," Aune says. But first, "we had to verify it doesn't occur in the wild."

That headache—dealing with CWD in free-ranging deer and elk—has confronted Colorado and Wyoming wildlife experts for years. In 1967, scientists at wildlife research facilities in Fort Collins, Colorado, observed something unusual with their captive mule deer. The cervids stood listlessly in their pens, heads and ears drooping. They drank and urinated frequently; saliva dripped from their mouths. Lack of coordination, head tremors, and a wide-based stance followed. Death was inevitable. Soon, captive deer at a Wyoming research station were stricken, too. Because the two facilities traded deer and elk regularly, the disease's appearance in Wyoming was not a great surprise; but it was like nothing previously known. For 10 years, this strange affliction baffled scientists.

A process of elimination ruled out stress, dietary deficiency, bacteria, and viruses. In the meantime, 57 of 67 deer held in corrals to study food habits and nutrition sickened and died.

Finally in 1978, a Wyoming researcher noticed the brains of the dead animals were full of holes. Like a sponge. Like those of sheep afflicted with scrapie, a TSE. Because scrapie has been described for more than 200 years it was well known, though not well understood. Its name derives from the behavior of its victims. They scratch themselves, wearing off the fleece and breaking the skin. For more than two centuries, scrapie has stayed confined to sheep and goats. Other animals have not contracted the disease; neither have humans, including shepherds, who have eaten mutton from infected herds.

In March 1981, the now-named chronic wasting disease was diagnosed in a wild elk from Estes Park, Colorado. Wyoming discovered its own CWD problem in free-ranging cervids in 1986. Over the years, the disease has not spread rapidly in the wild. Nonetheless, wildlife officials in those states are concerned.

Aune wants Montana to avoid the sort of remedy to which Colorado might resort this fall. To try to break CWD's grip in one hunting unit where the infection rate runs 15 percent, Colorado's wildlife agency has proposed reducing a 1,000-head deer herd by 50 percent.

"For no other management program I know of has there been a 50 percent reduction in population density," Aune

says. "This type of population control is unheard of for a disease management program, game damage problem, or even public health issue."

Questions over how to manage the disease lie in the fact that so little is known about it. Researchers assume CWD acts like other transmissible spongiform encephalopathies. How TSEs act is another matter.

GARY LEPPART

CWD has persisted for decades in free-ranging elk in Colorado and Wyoming. It has not been detected to date in wild populations in Montana.

For anyone who slept through high school biology or stayed awake but thought it was a nightmare, here's a refresher: DNA, the body's basic genetic code, passes a limited amount of information to proteins. In turn, proteins make sure liver cells act like liver cells, brain cells act like brain cells, blood cells behave as blood cells should. And so on. Proteins come in a variety of shapes. Yet somehow, a particular protein—a prion—can become misshapen. Normal prion proteins resemble corkscrews. Abnormal prions acquire ribbon-like sheets. When that happens, a good prion can become an infectious prion. Infectious prions then force other prions into the bad form.

Prions kill brain cells; they have not been found in muscle tissue. Not yet, anyway. That's important because muscle tissue is what we call meat. Prions are most numerous in the brain, spinal cord, and lymph system, which includes bone marrow. In Britain, it's speculated that animal by-products, such as the brains, from bovine spongiform encephalopathy-infected cows got into hamburger and meat pies. Mad cow disease, first described in Britain, was caused by BSE prions. Dozens of people in Europe died as a result.

CWD has never been shown to affect people. Likewise, tests have not indicated the disease outside of a test tube can cross over into cattle or sheep or other wildlife, like bighorn sheep and antelope. Even in deer, no one yet has discovered how CWD moves from one animal to another. "We presume the oral route is the usual route," says Wyoming's Kreeger. That could be through nose to nose contact, or the prions responsible could be excreted, taken up in the soil and plants, then ingested by a grazing deer.

With no case of CWD found so far in Montana's free-ranging elk and deer, and with the Department of Livestock's strict 5-year surveillance program, the battle against CWD has shifted to the political arena, a place fraught with danger for a public agency.

The Montana Wildlife Federation not only applauds the current 5-year surveillance program, it wants to forbid the movement of elk within the state. There is even talk of a ballot initiative to prohibit the licensing of new alternative livestock operations. The idea of banning the shooting of penned wildlife has also surfaced. "Those are valid issues for the public to debate," Graham says. "FWP can raise issues in the legislative forum, but we are prohibited by law from taking sides on ballot initiatives."

For its part, the industry has pinned its hopes on science finding a CWD test for live animals, and eventually a cure. In this May's special session of the Legislature, the industry backed passage of an act prohibiting new alternative livestock operations until a live test for CWD is approved by the Department of Livestock. The law does not change the responsibilities of Livestock or FWP, nor does it apply to transfer, expansion, or modification of current operations. In the 10 days before the bill became law, FWP received seven applications for new operations—more than double the number usually received in a year.

"This is an industry that is proactive and helps find a solution for any problem that challenges our domestic or wild elk or deer," says Schubarth, the alternative livestock rancher from Vaughn. "The industry doesn't want CWD. We've got a lot of money invested."

"It's not good for free-ranging wildlife to have this disease. It's not good for the industry, either," Graham agrees. "Neither of us want to live with it." ■

Through new regulations and better education, the Montana Fish, Wildlife & Parks Commission hopes to stem the rising tide of

Boating

by John Fraley

Conflicts

NEAL & MARY JANE MISHLER

We Montanans value the opportunity to boat on the thousands of lakes and rivers across the Big Sky State. But as our waters become more crowded, it is increasingly clear that all boaters have to pay attention to the wide range of watercraft and shoreline users.

Over the coming months, the Montana Fish, Wildlife & Parks Commission will take a look at watercraft conflicts and possible solutions. "In the past two or three years we've heard a crescendo of complaints about motorized use—mostly related to personal watercraft [PWCs]," says Stan Meyer, FWP Commission Chairman. "While we know there's a problem, we don't see a consensus on how to address it. People hate to see more regulation. Yet, PWCs are creating conflicts with anglers and cabin owners—it's a growing trend."

Meyer says that community study groups will be formed for Bean and Hebgen lakes on the east side of the divide. Group members will examine watercraft conflicts and see if they can agree on solutions. Their findings will add to information collected in previous surveys and work groups.

"Our draft policy will suggest some zoning and quiet times on certain lakes," says Meyer. "This would provide a benefit for anglers and others seeking solitude. For western Montana we'll consider no-wake rules on lakes less than 35 acres in size and a no-wake zone within 200 feet of shore for all lakes." The draft policy will be released this summer, modified following public input, then adopted as a final rule, Meyer says.

In the past, the FWP Commission's authority for developing regulations on Montana waters was limited to public health and safety issues and protection of property. The commission used this authority occasionally to establish no-wake zones around marinas or other congested areas, restrict waterskiing in the interest of safety, and limit access to protect wildlife. Often the concerns went beyond safety, touching on social demands, but rules were made based on resource protection and public safety.

As a result of public demand the 1999 Legislature passed House Bill 626, which gave the commission authority to regulate, through the administrative rule process, "public welfare" and "the resolution of conflicts between users of motorized and nonmotorized boats." Public welfare can be further defined as social conflicts on Montana waters. Montana waters are all "public fishing reservoirs, public lakes, rivers, and streams that are legally accessible to the public." This is the authority Meyer and the FWP Commission will use to develop new rules for the regulation of motorized watercraft.

Are there frequent conflicts among watercraft users? Certainly. Has it become a major problem? It depends on which part of the state and the type of watercraft you're talking about. Most people who believe there is a problem on our lakes point to a single machine: the personal watercraft, or PWC.

"The PWC is certainly an abused contraption," says Doug Averill, owner of Flathead Lake Lodge in northwestern Montana. "People on PWCs are so enthralled with operating their machine that they

often aren't aware of their effect on others."

Averill's lodge is located on the shoreline of the West's largest natural lake, and he sees all kinds of watercraft virtually every day of the summer. He believes that PWC operators stay too close to shore. He suggests they should idle out from shore and play in the middle of lakes. Averill even suggests an experimental PWC "park" in the middle of large lakes.

Averill believes that irresponsible operators, in addition to being a nuisance, can threaten public safety. "I recommend that waterski boats and PWCs not be operated from public docks; this is a major safety hazard. If there's a birthday party at Wayfarers State Park [on Flathead Lake] and some of the participants operate PWCs all day long off the public dock, it terrorizes everyone in the park. Just getting jet skis farther from shore would eliminate many of the problems. The safe boating law [decibel laws and certain lake restrictions] and 200-foot laws for jet skis eliminated some of the problems; it was a good start."

Lack of education and awareness are the major obstacles to safer boating, Averill believes. He suggests a boating course similar to the hunter education course, but targeting seventh or eighth graders. A classroom program such as this would be a great opportunity to educate kids on water recreation, safety, and ethics, he says.

"There needs to be better education at access points and better education for people who rent PWCs," says Averill. "Most tickets are written to people who don't know the regulations; if there were better education there would be far fewer problems." He also advocates standardizing regulations, taking a broad-brush approach to making them simpler and easier to read. "In general I believe we need simpler, more effective regulations, and a trend towards education," Averill concludes. "This will develop a better relationship among the public, watercraft users, and FWP."

SAM M. ESPELAND

Most boating conflicts on lakes arise between anglers and personal watercraft or PWCs.

A long-time retail dealer of personal watercraft, Fred Zauner of Kalispell, agrees that some PWC operators have made it difficult for all users. "The major problem with PWCs happens when that 16- or 18-year-old kid sees the cutest girl of his life on a dock. He puts the PWC on its tail and dances across the water to show off. This is what has really affected the industry—the young riders."

Pollution and noise are often mentioned by people who object to PWCs, but Zauner says these issues are being addressed. "PWCs are much improved, more efficient, quieter, and less polluting," he says. "I'm glad to see the industry stepping up to the plate. The three-seater watercraft work well to pull waterskiers; I pull my grandson on one. These bigger craft are designed more for the adult and family market." Because of their problems, says Zauner, smaller PWCs are a declining market.

Zauner also sees a need to improve the ability and courtesy of PWC riders. PWCs may not be compatible on smaller lakes, he says. On 3,244-acre Ashley Lake, where Zauner owns a home, he believes there are fewer problems

BARBARA THOMAS

because residents take a community approach to watercraft use. "Residents are not afraid to approach people who are abusing watercraft use and ask them to improve," he says. This community leadership has worked here and I think it would work on other lakes. You have to control watercraft uses at your front door."

Zauner endorses more enforcement for operators who continue irresponsible behavior. "I'd like to see stronger fines and penalties for violations. Once a person gets nailed with a hefty fine the word gets around quickly; it spreads from craft to craft."

Are there conflicts between watercraft users and anglers? Again, it depends. On most lakes the problem is not acute, according to Steve McGuire, who is founder and past-president of the Montana BASS Federation.

"In the BASS Federation we try to promote awareness of other users on the water," says McGuire. "We still see problems though. One or two people can make everyone look bad. Our problem in Montana is much smaller than in other states where the population and use is much higher. I've been buzzed occasionally by someone, but it's rare. I have had PWCs buzz between my boat and the shoreline while I was fishing a few times. It's important for boaters and anglers to be courteous, use our heads, and treat others the way we'd like to be treated. If those simple rules were followed, there wouldn't be any problems. We have enough laws on the larger lakes; I'd hate to see more. There might be room for more regulations on smaller lakes, though."

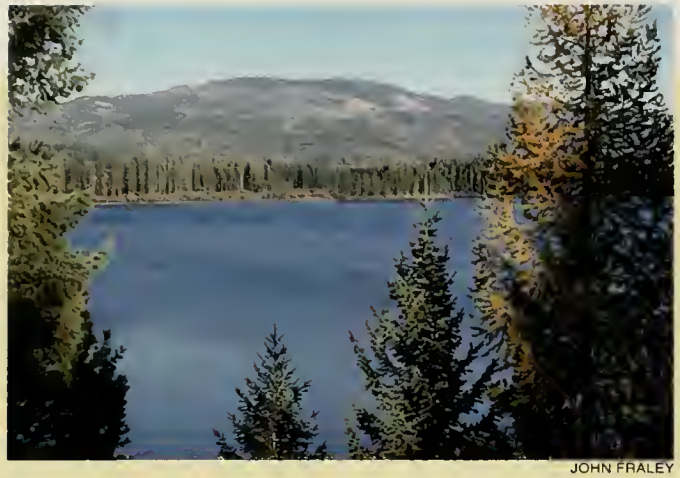
On the other side of the state, anglers have butted heads with PWC operators on Tongue River Reservoir. According to Brad Schmitz, FWP fisheries manager for Region 7, anglers became fed up with the noise and disturbance. He says the popular crappie fishery is the best in the state, supporting a fishery of 20,000 or more angler-days each year.

"We've seen increasing problems over the last few years with PWC noise and wake jumping," says Schmitz. They weren't breaking the law, he says, but the situation resulted in conflicts. "Anglers seek solitude and quiet, while the PWC operators want to rip around looking for excitement."

Reducing conflicts among users may not be as difficult as some would think, according to Schmitz. "I think the two interests can coincide; there's enough room on that reservoir for everyone to have fun. You just need to have some common courtesy for your neighbors. That goes for both sides. A 300-foot no-wake setback should work [this has been adopted by the FWP Commission for certain areas of the reservoir]. That way the personal watercraft won't buzz the anglers. The price the PWC users pay is they can't go burning into shore. PWCs will also be excluded from some of the bays where there are private homes." These regulations will also apply to other motorized watercraft.

At public meetings here and across the state, people also requested more FWP warden patrols and increased education. Don Hyyppa, FWP's regional supervisor in Miles City, notes that in response to public comment an additional water safety person will work on the Tongue River Reservoir this summer. A reservoir manager will also help out. Hyyppa says that self-policing by the users themselves and voluntary quiet hours should also improve the situation.

At the request of the FWP Commission, FWP personnel recently conducted a public scoping process to examine the nature of conflicts and solutions to reduce them. The results varied by region, but in general people in western Montana believed there was a significant problem. In one survey, FWP received 438 written responses. Of those, 325 felt there was a problem while 107 said there was not; 6 were undecided. Of those who believed there was a problem, most listed PWCs, safety, noise, and lack of courtesy as specifics. They suggested restrictions on PWC use, restricted areas, more law enforcement, and education. Even the respondents who



JOHN FRALEY

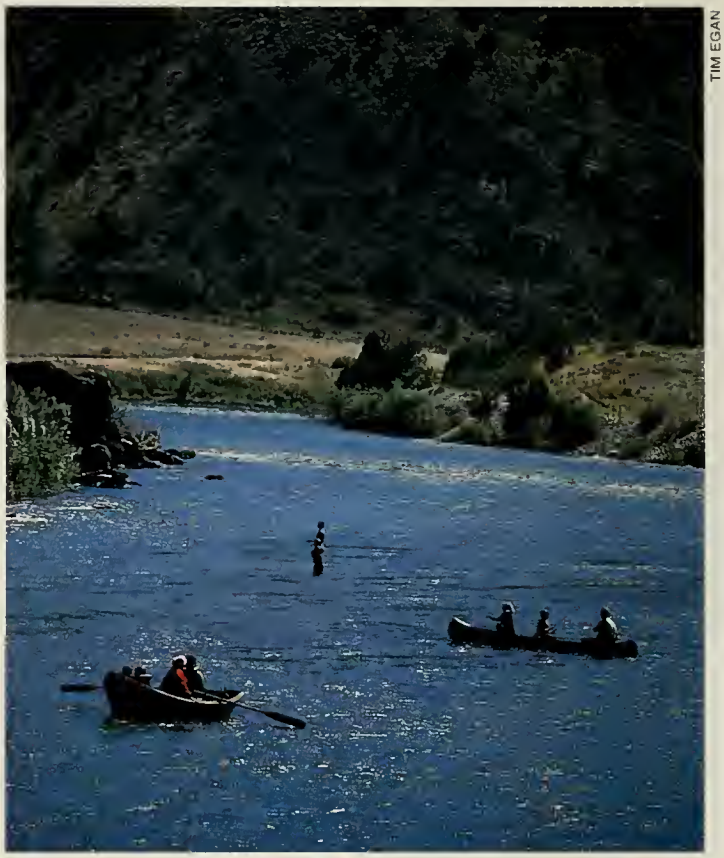
Thompson Chain of Lakes: A Case Study

The popular Thompson Chain of Lakes (TCL) is a 4,000-acre fishing access site managed by FWP. Located between Kalispell and Libby, it includes more than 20 lakes. With increasing visitation, water-use conflicts and issues related to loon nesting have grown at the TCL. Two new regulations address these conflicts: First, 15 lakes in the chain were restricted to no-wake speed. In addition, PWCs statewide must keep to a no-wake speed within 200 feet of a dock, swimmer, swimming raft, nonmotorized boat, or anchored vessel.

In 1999, FWP personnel intensively patrolled the area to inform visitors of the new regulations, and interviewed 204 lake users and lakeshore owners to get their opinion of the new rules. Survey results showed:

- Most of the recreationists were Montana residents.
- Only about one-third were aware of the new regulations.
- Most homeowners were aware of the new regulations.
- Slightly more than half those interviewed believed boaters were complying with the new rules.
- Slightly less than half felt that personal watercraft users were complying.
- More than half of those contacted agreed that the new rules increased safety and resource protection, while reducing boating conflicts; less than 10 percent disagreed.
- Nearly everyone approved of the new regulations (recreationists, 96 percent; homeowners, 80 percent).

Overall, approval of the regulations was very strong. Most people are willing to accept no-wake rules if there is a rationale and if they are combined with education and enforcement. The rules are more likely to be opposed by some people who live on the affected lakes.



TIM EGAN

As Montana's rivers and lakes become more crowded, boaters need to consider waders, swimmers, and shoreline users.

believed there was no significant problem suggested more enforcement and education.

In the Billings area, FWP Region 5 Supervisor Harvey Nyberg believes that the solution for water conflicts is more localized. "Most of the spoken comment at our meetings in R-5 asked for no more restrictions on motorized watercraft," he said. "But the written comment was more evenly split. A significant number of people wished to see more restrictions on certain lakes.

"I believe we should deal with watercraft use on a case-by-case basis; a blanket solution may not be the best approach. It's a bit easier in R-5 because we only have about a dozen major lakes. In a region with hundreds of lakes, the case-by-case approach may not work."

Jerry Smalley, a seasonal lakeshore resident, observed the public scoping process. He came away from it leaning towards more education and enforcement. "Absolutely there is a problem," he says. "But I believe the solution is based on behavior, not on the machine. You can legislate no-wake zones, but much of the problem lies with the operator. We do need some regulation on PWC users who stay in one spot and play; they are a major problem. A 200-feet-from-shore regulation would help move PWC operators out from shore. If they're farther out they are more likely to move around and not stay in the same place for so long."

Like others, Smalley suggests mandatory boater education

DIANE ENSIGN

State boating laws require waterskiers to stay at least 50 feet from swimmers or swimming areas.

for operators. And he is a proponent of more warden presence and stronger enforcement of existing laws. Another step he endorses is expanding the volunteer education program piloted in several FWP regions. "The Volunteer Water Watch Program [similar to neighborhood watch] is good for public awareness. It gets people talking about the regulations, safety, and courtesy."

FWP Commission Chairman Stan Meyer and the other commissioners face a daunting challenge: finding a process to cut down on boating conflicts with the least amount of regulation. One of Meyer's commission colleagues, Charlie Decker, was surprised at the intensity of the debate.

"There are so many issues and such a diversity of people who feel strongly about watercraft issues," says Decker. "I thought the solutions would fall into place with all the public comment we've had up until now. But it's going to be much tougher. We're not going to make everybody happy." The issues vary from one side of the Continental Divide to the other, says Decker, which adds to the complexity of any proposed solution. Decker sees promise in the lake study groups established to develop solutions.

"There's no sense in a government entity going through the gymnastics of coming up with a solution," he says. "Let's see what the people who live on these lakes come up with. Then the commission can go to the public with the results and take it from there."

This collaborative effort by the commission and the public may not solve all the problems with boating conflicts in Montana, but it's a good start. One thing is sure: The conflicts will only increase if no efforts are made for a solution. In the meantime, as Montanans we can all make the situation better by following the Golden Rule while boating on our lakes and streams. ■

Montana Boating Regulations

For a more complete listing, see "Montana Boating Laws," available at most FWP offices or by writing FWP, 1420 E. Sixth Ave., P.O. Box 200701, Helena, MT 59620-0701 (phone 406-444-2535).

The following rules relate to motorboats and PWCs:

- Must not exceed 86 decibels at 50 feet or 90 decibels at 1 meter.
- May not be operated by children 12 years or younger unless accompanied by someone 18 years or older.
- May be operated by children 13-14 *only if* they have a motorboat operator's certificate or evidence of completing an approved water safety course, unless accompanied by someone 18 years or older.
- A person must be 18 years old to rent a craft greater than 10 horsepower.
- Waterskiers must remain 50 feet from swimmers or swimming areas.
- All boats must remain at least 20 feet from a swimming area, 75 feet from a person hunting or fishing, and 200 feet from a "diver down" flag.

SAM M. ESPELAND

- All boats must remain more than 100 yards from a vessel or waterskier while crossing a wake.

The following rules relate to personal watercraft (PWCs):

- Must remain no-wake within 200 feet of a dock, swimmer, nonmotorized boat, or anchored vessel on a lake.
- PWCs are prohibited on the Missouri River from its headwaters near Three Forks to Prewitt Creek near Hardy.

Wolves, Elk,

DAN & CINDY HARTMAN

and People

by Tom Lemke

One morning last February as we circled the Dome Mountain Wildlife Management Area (WMA) counting elk, we spotted three animals on the snow. A closer pass revealed six black wolves resting on and beside a late-winter snowbank in Stands Basin. As our Super Cub passed over, three wolves stood up, walked 150 yards, and casually laid down again.

These were some of the "new kids on the block" that were causing such a public outcry. How could these seemingly docile animals be turning people and groups so vehemently against one another? Part of the reason lay just over the next ridge. Less than a quarter-mile north we flew over an adult cow elk recently killed by the wolves; now a bald eagle and half a dozen ravens were taking their turn.

Five years ago wolves were transplanted into the Greater Yellowstone Ecosystem, an already high profile and controversial wildlife arena. Since their arrival, wolves and their potential impacts have been discussed and debated from the Town Café in Gardiner, Montana, to Senate and House chambers in Washington, D.C. Wolves and the issues they raise have an amazing effect on people. People from all walks of life have or can easily be persuaded to have strong feelings about wolves and wolf management. Whether they've ever seen a wolf or ever will matters very little. Wolves, elk, and people are a volatile mix.

In the last five years as a Montana Fish, Wildlife & Parks (FWP) biologist stationed in Livingston, I've had an opportunity to learn a little bit about wolves and a lot about how people react to wolves. As hard as the biological questions have been, they are easy compared to the social, political, and emotional issues wolves raise.

I quickly learned that to many people, wolves are a larger than life "super-species." The wolf has ascended from being simply a canine predator to being either the most popular or most despised wildlife symbol in the American West. Different people attribute either fantastic benefits or total disaster to wolves. Some claim wolves have already decimated wildlife populations, creating a biological desert, while others say they are the savior of the entire ecosystem, restoring a pristine balance between plant and animal communities. The wolf is a species of extremes, an enigma that we can't seem to live with, or without.

As in most deep-seated wildlife controversies, biological reality lies somewhere between, in the less dramatic and less glamorous middle ground. To further confuse matters, many "wolf issues" have nothing to do with wolves or biology. Wolves are

used as a springboard for discussions about government vs. private rights, federal government vs. state authority, environmental vs. economic values, and management of public funds. Various groups effectively use wolves to further an agenda or raise support for a cause.

So where does FWP, a state wildlife agency that has been responsible for managing wildlife in Montana for almost 100 years, fall out in all of this? Rightly or wrongly, under the current federal Endangered Species Act, FWP has no official management authority over wolves in Montana. We have responsibility and management authority for elk, deer, moose, bighorn sheep, mountain lions, black bears, coyotes, beavers, and every other species that wolves compete with or depend upon, but not the wolf itself. For the time being, we are a wildlife agency without influence. FWP and the people of Montana have a great deal at stake in wolf management, but we have yet to become a real player. That position may change in the near future (see sidebar on p. 24).

But let's get back to that scene in Stands Basin and some of the biological and management questions related to wolves and elk. In the last few years people have expressed concern about how wolves will impact elk, livestock, and people. The following are some of the most commonly asked questions. While we don't have all the answers, we can begin to contribute to a better understanding of the situation.

Why are these "Yellowstone wolves" leaving the Park and what can we do about them in Montana?

The term "Yellowstone wolves" is a misnomer. Just like elk, mule deer, bighorn sheep, bison, and grizzly bears, wolves don't recognize man-made boundaries drawn on a map. Biologically, Yellowstone Park is not a complete ecosystem for large, wide-ranging animals. When animals need something important beyond the park boundary, they leave. Many ungulates leave to find suitable winter range that the park does not provide.

Wolves leave Yellowstone Park to find food and more importantly space. Wolf social behavior dictates that packs occupy exclusive territories and not tolerate other packs. Because much of the suitable wolf habitat in Yellowstone Park is already occupied and defended, there is little opportunity for new packs inside the park. As a result, young adult wolves are forced to find new homes and set up territories outside the park.

The intent of wolf recovery is to reestablish wolves in suitable habitat over an area much larger than Yellowstone Park. The wolf recovery zone for the Yellowstone release site includes all of Wyoming, over half of Montana (everything east of Interstate 15 and south of the Missouri River) and about 10 percent of Idaho (everything east of Interstate 15). In Montana, wolves released or born in Yellowstone have already ranged from Red Lodge to Dillon and north to the Crazy Mountains. Portions of this huge area and much more will probably be occupied by wolves eventually.

What effect will wolves have on elk?

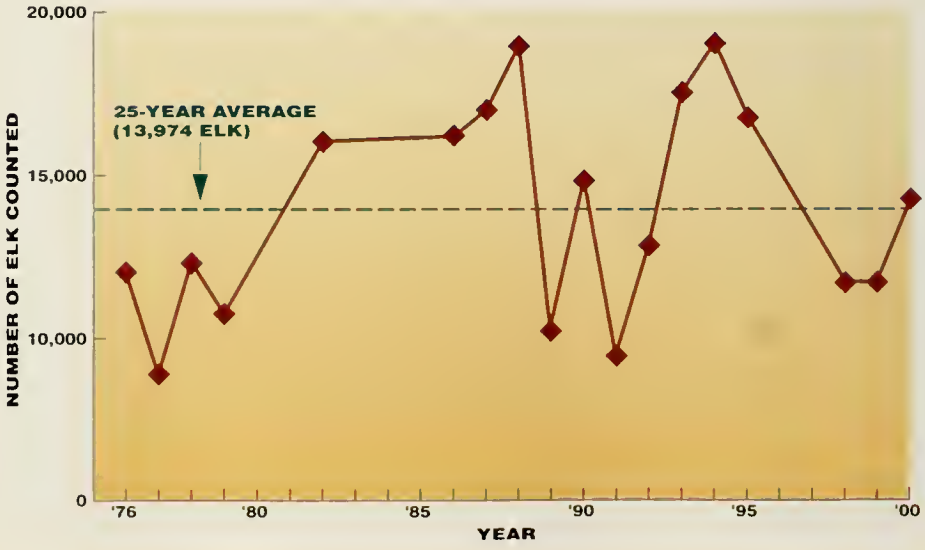
Elk currently comprise about 90 percent of the documented wolf kills in Yellowstone wolf studies. Wolves will reduce elk numbers and are likely to change elk behavior and seasonal distribution. The Wolf Recovery EIS estimated that elk reductions based on 100 wolves could range from 5 percent to 30 percent, but nobody knows for sure. All predator-prey systems are notoriously complex and difficult to monitor. The effect wolves have on elk may also fluctuate greatly from year to year, depending on dozens of factors.

Since 1976, northern Yellowstone elk counts have ranged from 9,000 to 19,000 elk, with an average of 13,900. In December of 1999, the total elk count was 14,538, a modest increase over the previous two years and slightly above the 25-year average (see graph). Current elk numbers are down from all-time highs in the mid-1990s, but are still within normal ranges.

Which elk are vulnerable to wolf predation?

All elk are vulnerable to wolf predation. Wolves are opportunistic and under the right circumstances will

NORTHERN YELLOWSTONE COOPERATIVE WINTER ELK COUNTS



RODNEY SCHLECHT

Staying away from thick cover may have survival benefits for elk living in close proximity to wolves.

kill young, prime-age, old, healthy, sick, male, or female elk. The data on wolf-killed elk indicate approximately 45 percent were calves, 37 percent cows, and 18 percent bulls. Elk behavior and physical status as well as environmental conditions will affect the outcome of a wolf chase. There is safety in numbers. Elk in large, tight-running groups are much more difficult for wolves to successfully hunt. Standing their ground and fighting back may also be a better strategy for some elk, particularly bulls. Staying away from thick cover and out of deep snow in winter may also have survival benefits. Elk behavior and even habitat use could change as elk enter the "learning curve" of wolf survival skills.

Will wolves affect the Gardiner late elk hunt?

The Gardiner late elk hunt depends on elk that migrate to winter ranges north of Yellowstone Park. The late hunt is a population management tool used to help regulate the number of wintering elk and protect the productivity of winter range habitat (see March/April 1995 *Montana Outdoors*). Permit levels are based, among other things, on trends in the number of elk migrating north of the park.

The number of wintering elk depends on several interrelated factors, including weather, forage production, predation, calf recruitment, winterkill, disease, and human harvest. To date, periodic winterkills have been the most significant single factor affecting elk numbers. Whatever factors cause elk numbers to change, be it wolves or winterkill, permit levels are increased or decreased when migrant elk numbers fluctuate. For example, permit numbers were reduced by 73 percent following a major elk winterkill in 1988/89. Wolves will affect the late hunt to whatever extent they influence migrant elk numbers.

From 1989 to 1999, wintering elk numbers have been high, averaging 5,500 elk, with highs of 8,500-plus elk in 1996 and 1997. During this period hunters enjoyed liberal seasons, with 2,700-3,000 permits in most years. This past winter, only 3,500 elk out of the 14,500 elk counted in December moved north of the park. For the first time since 1995, elk numbers on and adjacent to the Dome Mountain WMA did not exceed the management objective for that area. As a result, FWP will recommend going from a liberal season type (2,700-plus permits) to a standard season type (2,000-2,700 permits) for the 2001 Gardiner late

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Wolves have become a popular tourist attraction in Yellowstone National Park.

hunt. The exact number will be finalized in August of 2000.

Will wolves provide biological benefits?

Many people have argued for decades that large Yellowstone elk populations have negatively impacted plant communities and animal species that depend on those communities. They believe that species diversity is jeopardized due to elk grazing and browsing. Recent studies have focused on the loss of aspen and willow communities. If wolves significantly reduce elk numbers for a long enough time period, there could be positive effects on plant communities and species diversity.

Wolves could benefit other species in both direct and subtle ways. Scavengers from insects to ravens, eagles, foxes, and bears benefit from new food sources supplied by wolves. Wolves typically reduce coyote populations, which in turn could increase rodent populations, benefiting many smaller predators. Wolf predation could also dampen the natural variation in ungulate numbers, reducing extreme fluctuations that periodically impact plant communities. These and other possible ecological changes will be difficult to monitor and attribute solely to wolves. Establishing a new wolf population in the Rocky Mountains will obviously benefit the long-term biological future of wolves in North America.

How are wolves affecting the local economy?

The return of wolves has been enthusiastically received by tourists. Wolves have become one of the most sought after wildlife viewing and photographic subjects in the park. Tens of thousands of people have seen wolves and consider the experience a unique opportunity. Wolf books, guidebooks, and souvenirs fill the shelves. There are also several small eco-tourist businesses that specialize in wolf tours and classes.

On the down side, some outfitters north of Yellowstone Park attribute less successful elk hunting to wolves and predict a serious decline in their livelihood. Some outfitters are diversifying into other businesses. Local ranchers have experienced financial losses and considerable personal stress related to wolf depredation, which is likely to continue. If fewer elk are available for hunting north of the park, hunters are likely to contribute less to the local economy.

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Wolf Plan Advisory Council Formed

Last January, FWP Director Pat Graham asked Governor Marc Racicot to appoint a Wolf Plan Advisory Council to help develop a statewide plan for managing wolves when they are delisted by the U.S. Fish and Wildlife Service. Depending on wolf population growth and recruitment, federal delisting of wolves in Montana could occur as early as January of 2004. The council will address distribution, control, and monitoring of wolves, as well as the cost of implementing a state-based program.

In May, Governor Racicot appointed the following individuals to the council: Chase Hibbard (Chairman), Helena; Darlyne Dascher, Fort Peck; Bruce Malcolm, Emigrant; Bruce Tutvedt, Kalispell; Dr. Nelson Wert, Townsend; Hank Fischer, Missoula; Dr. Charles Buehler, Butte; Robin Hompesch, Bozeman; James Cross, Kalispell; Terry Beaver, Helena; Ira Newbreast, Browning; Jay Kirkpatrick, Billings.

The council is governed by a charter that specifically outlines its tasks and objectives. The main focus will be to help FWP establish a practical wolf management program that meets federal criteria and is acceptable to the people of Montana.

Are wolves impacting local ranchers?

Yes, wolves have killed livestock between Gardiner and Livingston, Montana. Since 1997, federal agencies have documented ten sheep, five cows, and three guard dogs killed by wolves on local ranches. In some cases, ranchers were compensated for documented wolf kills by a special fund established by Defenders of Wildlife. Obviously, not all wolf depredations are documented. Studies in Idaho indicate that for every documented wolf kill there may be from one to five undocumented wolf kills. Shortcomings in the compensation program continue to be a point of contention with some local ranchers.

If state wildlife agencies take over wolf management, how much will it cost and who will pay for it?

No one knows how much it will cost, but monitoring and managing wolves in Montana could easily reach several hundred thousand dollars each year. Likewise, it is uncertain where such a large sum of money could come from. Federal assistance to states for managing endangered species has been woefully inadequate under the current system. Montana sportsmen are likely to contribute some money through license dollars, but they can no longer pay the entire bill for managing all wildlife species. We must have a new source of funding for wolf management. If implemented, the proposed federal Conservation and Reinvestment Act (CARA) appears to be a potential source of funding.

Once delisted, will wolves ever be legally hunted or trapped in Montana?

Regulating wolf numbers by hunting or trapping is a great uncertainty of wolf management. The option is a viable and popular one with many people and is used in parts of Canada and Alaska. Turning black bears and mountain lions into big game animals and establishing credible seasons and/or harvest quotas has worked well in Montana and elsewhere. Both species are thriving in the presence of a harvest season that allows for regulating numbers, removing problem individuals, and providing popular recreational opportunities. Theoretically, the same could be done with wolves without jeopardizing their long-term future. However, because wolves are such a powerful symbol, any effort to regulate numbers will likely be met with expensive and prolonged legal challenges. As with other endangered species, decisions may ultimately be made in the court system.

RODNEY SCHLECHT

Wolves will affect the Gardiner late-season elk hunt to the extent that they influence the number of elk migrating north of Yellowstone Park.

What does the future hold for wolves, elk, and people in Montana?

One important fact that some people continue to avoid is that *wolves are here to stay*. Just as elk are adapting to wolves by changing their behavior, we as sportsmen, outfitters, ranchers, tourists, and wildlife biologists will have to adjust our expectations and to some extent how we do business in the future. Life with wolves won't be exactly the same as it was before. Undoubtedly, some groups will be impacted more than others. My mother once advised me that life will be both good and bad, but it does not have to be fair. Wolf recovery appears to be an example of her wisdom.

Collectively, our best chance at coping with wolves lies in developing a broad-based state management plan that all interest groups in good faith design, can agree upon, and ultimately live with. Obviously, compromise is critical to success and distrust will lead to failure. Everyone's values and opinions should be respected and recognized as legitimate. The various values may not change, but in a good management plan there should be ways to accommodate all of them.

It won't be fun and it may not be pretty, but it is time that Montana moves forward and takes control of wolf management. We all need to step up to the plate, make the tough decisions, and form our own relationship with wildlife's new kid on the block. ■

Floating Natural

by Stan Bradshaw

MIKE GURNETT

My first float trip, if you could call it that, is conclusive proof that the laws of natural selection are not infallible. It was spring 1968, during my freshman year at the University of Montana. My pal Greg had a raft, it was a sunny (though cool) weekday afternoon, the maples were just starting to bud out, and the Clark Fork, which flows right by the university, was running high but clear. What better day to cut class and float the river? Greg and I gathered up a couple of buddies, two paddles, some old kapok-filled horse-collar life-vests (somebody thought we had to have them in the boat even if we didn't wear them), a few beers, and off we went.

Actually, it wasn't much of a raft—one of those rubbery, yellow, thin-skinned toys that passed for watercraft in the local discount sporting-goods stores—and it wasn't really much of a float. In the testosterone-poisoned muddle that passes for thought in those days, we had our sights set on the culvert pouring the overflow of an irrigation weir back into the river. The culvert was big, maybe five feet in diameter, and its flow dropped in a graceful arc into a pool four feet below the culvert and right next to the main current of the Clark Fork. To us, it looked all the world like a water slide. We would come down the weir, line up on the culvert and (with our two paddles) accelerate smartly through the culvert, and blast triumphantly into the holding pool. A regular whitewater adventure right in the middle of town.

Our course plotted, we put in at the top of the weir, about 300 yards above the culvert. Once on the water, the plan quickly started to come apart. First, there was the steering problem. It's darn hard to maneuver a rubber ducky with two paddles—especially when you're sitting in the bottom of the boat, have never handled a paddle, you've had a couple of beers, and no one is navigating. It was as if each of us reverted to some exotic tongue completely unintelligible to everyone else in the raft. Nonetheless, after a hundred yards or so, our paddlers got the boat going in more or less a straight line. At least we were headed downstream. And we were undaunted. After all, we would only have to accelerate for 10 feet or so through the culvert. No sweat.

Within a couple of minutes we were at the culvert. Somehow, we got lined up, and managed a couple of good strokes going through the culvert. Then things really went to hell. In our assessment of the culvert as water slide, we made a few miscalculations. First, the plume of water coming out of the

BILL THOMAS

culvert, unlike a water slide, had no firm bed to hold us up. Second, there was no way we could paddle that raft fast enough to stay at current speed as we left the culvert, even if we had known how to paddle. And third, we hadn't calculated the weight factor of the four guys in the boat. On one side were Greg and me, weighing in at a strapping 135 and 150 pounds respectively. On the other side were Kevin and Tom, weighing in at 195 and 180 pounds—not exactly a balanced load.

Quicker than my memory could record, we were upside down as we cleared the culvert. As that's how we entered the pool. Spring runoff on the Clark Fork is numbingly cold. For what seemed like hours, but surely was only seconds, my only response was to try to inhale. While stumbling and bouncing in only five feet of water, I couldn't get my breath. When I finally did, I found my muscles stiff and wooden. Had I needed to swim, I would have drowned. I looked over at Greg on the other end of the overturned raft. He was blindly splashing and pawing, trying to get a purchase on the raft. Something was wrong with this picture. Then it hit me. Greg was missing his glasses—the Coke-bottle thick, horned-rimmed kind marking Greg as near-blind. He finally got a grip on the raft, and we managed to drag it to shore. Tom and Kevin were crawling out on the other bank. For a few minutes we just sat on shore, heads between our knees, trying to get our breath and bearings back.

When we finally got up the energy to assess our damage, it wasn't pretty. While no one had drowned or been injured, our equipment had taken a major hit. Greg never did find his glasses, life jackets (conveniently stowed in the middle of the raft where they wouldn't get in our way) were headed toward Idaho, along with our two paddles. The raft, not designed for high-altitude water entry, had some major seam leaks. Leaving the raft on shore, we stumbled back to our dorm, got warm showers and dry clothes, and then chased down the remainder of our equipment. Amazingly, we found most of it, losing only one paddle, one life jacket, and a couple of beers.

That night, dry, fed, boozed, and relatively unscathed—and in the tradition of youthful adventurers, enthusiastic but not very bright—we reveled in our adventure without a thought as to what could have been.

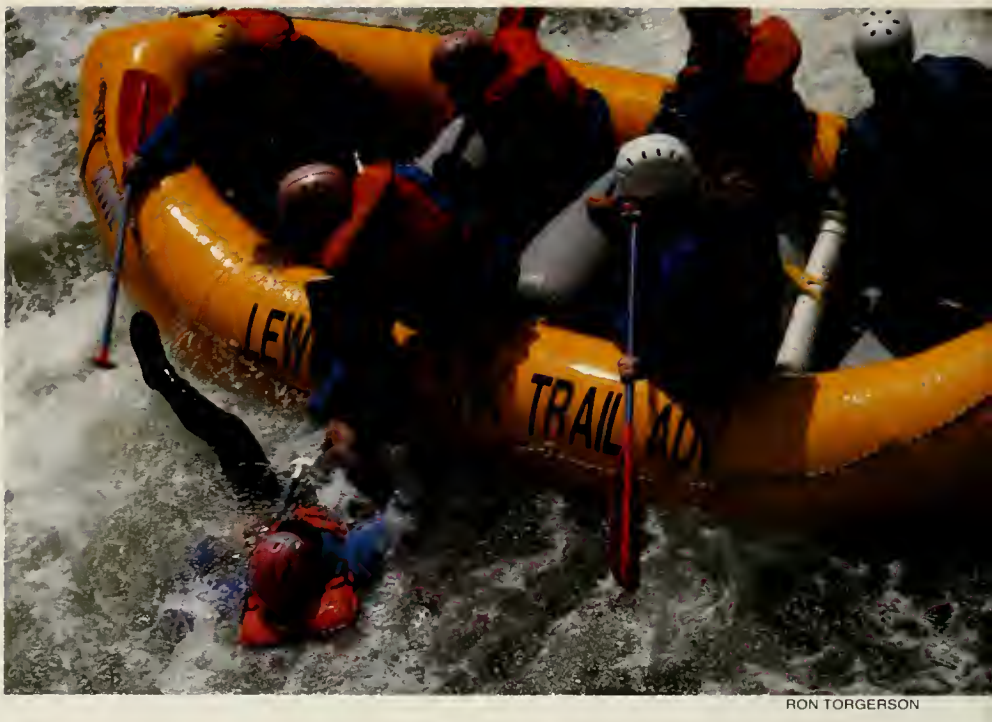
So what did we do wrong on that maiden voyage? The list of what we did right would be much shorter. Here are the highlights—alcohol; the personal flotation devices we didn't wear; absolutely no appreciation for the effects of cold water; inexperience; inadequate equipment; poor (read that as "no") planning; and not a glimmer of understanding for the limits of our craft or our abilities.

Let's look at a few of those little foibles in detail.

The American Canoe Association has gone to considerable effort over the course of many years to track the cause of fatal boating accidents. Following are their findings of the top five causes:

1. Failure to wear personal flotation device (PFD or life jacket);
2. Cold water and cold weather;
3. The victims were inexperienced;
4. Alcohol is a contributing factor;
5. The victims are often non-swimmers.

No PFDs: After inexperience, the failure to wear a PFD is the most common contributor to boating fatalities. All too often the difference between life and death is a PFD. In our case, we were lucky enough to dump into a shallow, nearly still pool. Speaking for myself, had it been any deeper and had there been any current, I would have drowned. Bottom line? Wear your PFD.



RON TORGERSON

These rafters are properly outfitted for a whitewater emergency with life jackets, warm clothing, and helmets.

Alcohol: Beer floats—armadas of rafts, often trailing inner tubes or smaller rafts full of beer, and drifting aimlessly down the river—are a cliché on western rivers. You know immediately when you have come upon one. The mood will be raucous, though usually friendly. Lots of splashing and falling overboard usually attend these events; and usually, there's not a PFD in sight.

In many of the fatal accidents that have occurred around the country, alcohol was a factor, if not the leading factor. It can sometimes be difficult to weigh the contribution of alcohol to boating accidents. In many cases, it is one of a number of factors. But the effects of alcohol can be so insidious and pervasive—especially as to impairing one's judgment and reflexes—that it is no surprise that the presence of alcohol at boating accidents appears repeatedly. And the thinking of our intrepid little group? "Heck, have another beer. It's like antifreeze, isn't it?" Hardly.

Inexperience: Perhaps more than any other single cause, inexperience contributes to fatal river accidents. This inexperience can manifest itself in a number of ways, ranging from inadequate preparation for cold water and weather, to failure to wear a PFD, to inability to judge the difficulty of the water conditions, to inability to maneuver the craft. Our group? Guilty on all counts.

Cold water: The most obvious result of exposure to cold water and cold weather is hypothermia. Perhaps just as disabling, however, is the immediate effect from immersion in cold water. Often, when water is extremely cold (below 50 degrees Fahrenheit) your first problem may simply be to breathe. It isn't that you forget to breathe; it's more a matter of your lungs not doing what you will them to—a little like being hit in the solar plexus. Of course,

if you're struggling to inhale, you are likely not to attend to other important things, like swimming or getting to shore. Within an unbelievably short time, your ability to do anything disappears as your muscles, especially your extremities, cease to function. Shortly after that, if you're still alive, you slip further into hypothermia, and soon you're dead from hypothermia or drowning. It's a vicious cycle. You can't swim because it's too cold, but if you don't swim, you die.

That was us. The only thing that saved us was that we didn't dump into current. Had we had to fight the current, some or all of us would have died.

Here's a simple rule of thumb. If the sum of the water temperature and air temperature is less than 100 degrees, the risk of immersion-induced hypothermia is high. If you are going to float in those conditions, make sure you dress properly (wet suit, dry suit, multiple synthetic layers). If you don't have the right clothes and equipment, do something else—go bowling, play golf, or read a book, anything. Don't go floating.

Non-swimmers: Could all of our group swim? I have no idea. Had the water been a little deeper and bigger, I suspect I would have found out—at the wrong time. When you look at the other things that we did wrong, being a non-swimmer would have only exacerbated the problems, especially since one of the preferred methods of self-rescue is to swim yourself to safety. But the question never even occurred to us. Just a little adult thinking might have prompted us to pose the question, and, if asked and answered, we might have decided to go bowling.

So, given that we were batting nearly a thousand on the dumb and dead scale, why did we survive our descent through the tube? Dumb luck. Natural selection hiccuped, and we got lucky. But betting against natural selection is a bad gamble. Get stupid on a river enough times, and eventually you'll die. Better to heed the lessons of our misadventure by wearing your PFD, avoiding booze and drugs while on the river, learning to handle your craft and read the water (before you get in over your head, so to speak), recognizing the effects of cold weather and water and preparing for them, and learning to swim or improving your swimming skills. Follow those five rules and not only will your river trips be safer, they'll be more fun. ■

Editor's note—The preceding article is excerpted from Stan Bradshaw's new book, River Safety: A Floater's Guide. *The book is available for $14.95 from Greycliff Publishing Co., P.O. Box 1273, Helena MT 59624-1273; (406) 443-7332.*

BARBARA THOMAS

Don't Be a Victim

In Montana, motorboats and personal watercraft lead the list of boats that are involved in accidents resulting in injuries and property damage. But when you look at the number of boating *fatalities* over the last four years, nonmotorized boats (not including sailboats) are involved more often than motorized boats. Since 1996 there have been 33 accidents resulting in fatalities; in 21 of these the vessel was a raft, canoe, kayak, driftboat, or rowboat, resulting in 23 deaths (some accidents claimed more than one victim).

Most of these fatalities occurred on rivers (17) rather than lakes (6). About half the victims were not wearing a life jacket. A life jacket still provides your best chance of surviving a boating accident, but it cannot protect against everything. Prolonged exposure to cold water can result in hypothermia, the drastic reduction in body temperature. Runoff during high-water conditions is dangerous, as are logjams and diversion dams.—*Liz Lodman, FWP Boating Safety Coordinator*

Nonmotorized Boating Fatalities in Montana 1996-1999

Type of boat	Fatalities
Raft	11
Canoe	6
Rowboat	3
Kayak	2
Driftboat	1
Water body	
River	17
Lake	6
Life jacket worn	
Yes	12
No	10
Unknown	1

Catchall

Feeding Bears Is Dangerous for People and Bears

According to Tim Manley, an FWP grizzly bear management specialist stationed in Columbia Falls, bears are quick learners. "When people who live in bear country feed bears, whether it's grizzly bears or black bears, they are essentially teaching bears to come to houses to eat," Manley says. While most of the feeding is unintentional, some may be deliberate. "Either way, feeding bears endangers both the people and the bears."

Now is a great time for residents who live close to bear habitat to check around their homes and outbuildings and put away any grain, dog food, birdseed, hummingbird feeders, compost, or open garbage receptacles that could attract bears. "It's so easy for bears to get needed calories from human-related food sources that they stop seeking their natural foods," Manley says.

These food-conditioned bears often end up dead bears. When the bear is reported, it may be removed and relocated. FWP manages nuisance bears within guidelines that usually result in the removal of the bears with a "three strikes and you're out" policy. Bears that are relocated and return repeatedly are euthanized because they are so bold around humans that they become a threat to public safety.

According to Manley, many bears can be spared this fate if landowners bear-proof their homes and outbuildings by removing or securing attractants like livestock feed, pet food, bird feeders, and garbage, and avoid feeding wildlife.

"Wherever bears are located in the state, we need to make a real effort to prevent them from learning bad behaviors," Manley says. "People who live and work in bear country are the key to our success. Together we can save a lot of time and resources in relocating or retraining bears and in the end we'll save a lot of bears' lives."

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Black bears that become habituated to human food sources often have to be euthanized. Rural homeowners can prevent this by bear-proofing their outbuildings and securing garbage and other bear attractants.

Here are some tips homeowners should follow:

- Secure horse feed, duck, trout, and other feed in heavy-duty storage containers. Rubber or plastic containers are not bear-proof.
- Food from barbecues and picnics should not be left outdoors unattended, especially overnight.
- Coolers are not bear-proof.
- Bird feeders attract bears. Eliminate them or hang them 10 feet up and 4 feet out from the nearest trees. Use a rope-and-pulley system to refill them, and clean up seeds that spill onto the ground. Bird feeders should be taken down between April 1 and December 1.
- Pet food should be stored inside and pets fed inside. If you must feed pets outdoors, feed only as much as they will eat.
- Barbecue grills should be cleaned and stored after each use in a secure shed or garage.
- Fruit should be picked when ripe and fallen fruit collected immediately.
- Compost piles should be limited to grass, leaves, and garden clippings. Adding lime can reduce smell and help decomposition. Do not add food scraps.
- Gardens should be harvested as soon as vegetables, fruits, and herbs mature. Locate gardens away from forest and shrubs that bears may use for cover. Do not use blood meal.
- Beehives, honey, and bee larvae are especially attractive to bears. If you keep hives, elevate them on bear-proof platforms or erect properly designed electric fences.
- Do not put out feed for wildlife (corn, oats, pellets, 3-way, molasses blocks, etc.).
- Store garbage in bear-resistant garbage cans or dumpsters. Rubber or plastic garbage cans are not bear-proof.
- Keep garbage inside a secure building until the morning of pickup.
- Store empty recyclable containers, such as pop cans, indoors—the sweet smell attracts bears.
- Decrease odors by storing garbage in tightly tied, heavy-duty bags, and garbage cans with tight lids.
- Remove garbage regularly.
- Store especially smelly garbage, such as meat or fish scraps, in a freezer until they can be taken to a refuse site.—*Diane Tipton, Information Officer, Conservation Education Division, Helena*

Colstrip Warden Garners Two Awards at Law Enforcement Academy

Montana Fish, Wildlife & Parks Game Warden Jason Snyder, Colstrip, received two prestigious awards after completing basic training at the Montana Law Enforcement Academy recently. Snyder was awarded the Staff Award as the student who most demonstrates the skills and abilities needed to be a superior law enforcement officer. He also received the Mavity Award, which goes to the student ranked first in the class in fitness, academic achievement, firearms skills, and in training and performance evaluations.

During the 12-week course, the students receive training in legal issues, criminal investigation, firearms, police vehicle operations, emergency medical techniques, and defensive tactics with and without the use of weapons.

The students elect the winner of the Staff Award based on two scenarios: First, if they were a police chief or sheriff, who in the class would they choose as their right-hand person?

Colstrip Game Warden Jason Snyder (left), pictured with Region 7 Warden Captain Bryce Christensen, received two awards in a recent 12-week warden training course.

Second, if they were on a felony call where shots had been fired and an officer was down, which of their classmates would they most like to hear responding on the radio, coming to back them up? The majority of the 28 law enforcement students chose Snyder.

"I took this training really seriously. I wanted to walk away with better skills and a good knowledge of appropriate law enforcement techniques," Snyder said.

Snyder, who thought in high school that he'd like to work in wildlife enforcement, has a B.S. in animal science from Washington State University and a Master's degree from the University of Wyoming. He began working for FWP in 1998 as a seasonal employee in wildlife management and at the FWP wildlife laboratory in Bozeman before becoming a warden.—*Diane Tipton, Information Officer, Conservation Education Division, Helena*

Chad Murphy Receives Excellence Award

Game wardens from Montana Fish, Wildlife & Parks have awarded the Game Warden Excellence Award to Chad Murphy of the Boulder/Whitehall District. Wardens across the state participate in a voting process to select the warden who receives this prestigious award for exemplary service to the public and the state's wild resources.

"Chad has all the qualities of a well-rounded officer and employee of Montana Fish, Wildlife & Parks," said Sergeant Mike Ottman, Murphy's supervisor. "He combines his law enforcement training and knowledge of resource conservation to benefit a variety of people in the community including conservation groups, youths, landowners, hunters, and anglers."

As a warden, Murphy has been involved in a number of major cases where his investigative expertise has resulted in successful prosecution of violators for wildlife crimes of statewide and national significance. He has targeted problem areas and through use of techniques such as simulated wildlife decoys effectively reduced illegal activity in his district.

Murphy works closely with other FWP personnel on various projects, such as assisting with fish surveys on the Jefferson and Boulder rivers. He has been instrumental in alleviating wildlife damage problems for ranchers in the area through work with area biologists in season-setting and by coordinating special hunts. He has also taken the lead in maintaining public hunting access in his district through the use of the Block Management Program.

Murphy's public education work is recognized by this award as well. He writes a monthly conservation column for the *Whitehall Ledger* and works closely with hunter education instructors and public schools, making presentations on a range of wildlife and natural resource topics. He is founder and officer of the local Wild Turkey Federation Chapter and serves on the Whitehall City Council.

OUR STATE PARKS:

1ST PLACE

Justin Schroer, Lewis & Clark School, Great Falls

During the past school year, Montana Fish, Wildlife & Parks conducted its ninth annual statewide poster contest for fifth-grade students as a means of enhancing the understanding and awareness of Montana's state parks. First place went to Justin Schroer, a student at Lewis & Clark School in Great Falls, for his eye-catching poster illustrating the wide-open spaces at Ulm Pishkun State Park with an Indian camp and buffalo. Justin received a $150 savings bond and a T-shirt with his poster screened on the front. His school also received a state parks video and books for its library. The second place winner received a $100 savings bond, while third and fourth place winners received $50 savings bonds. All finalists received T-shirts.

2ND PLACE

Kayla Beans, Hellgate Elementary School, Missoula

Kayla's creative, colorful poster presents the historic horses of Wild Horse Island State Park in a free-spirited scene that continues on the island today.

HISTORIC HOMES

3RD PLACE (tie)

Jeff Andrews

Polson Middle School, Polson

Jeff's unique display of an array of plants and animals found in Montana's state parks caught the eye and vote of the judges.

3RD PLACE (tie)

Elizabeth Thomson

Lewis & Clark Elementary, Great Falls

Elizabeth's drawing of a miner working his claim while deer watch from a distance brings the history of Sluice Boxes State Park to life.

3RD PLACE (tie)

Josh Barone

Lewis & Clark Elementary, Great Falls

Josh's poster, with its clever border of Montana scenes, portrays a buffalo hunt at Ulm Pishkun State Park.

4TH PLACE (tie)

Jacob Wood

Salmon Prairie School, Swan Lake

Jacob's detailed poster depicts historic buildings from mining days at Elkhorn State Park.

4TH PLACE (tie)

Logan Floren

St. Jude's School, Havre

Logan's bright and imaginative poster shows what a typical day might have looked like at Makoshika State Park thousands of years ago.

From the Field

Eurasian Watermilfoil: *A Threat to Montana's Lakes and Rivers*

by Leslie Ferguson, Botanist, U.S. Forest Service (Libby) and John Wachsmuth, FWP Clean Lakes Coordinator (Kalispell)

Eurasian watermilfoil, an aquatic plant introduced to North America in the early part of the twentieth century, is advancing on Montana from several directions—it has been found in British Columbia, Idaho, and North Dakota. If it gets here it will negatively affect recreation, fisheries, and wildlife habitat.

The plant forms thick mats that can hamper swimming, fishing, boating, and waterskiing—in other states, people have reportedly walked across the surface of infested waterways on snowshoes. It can block irrigation intake pipes, depress property values of lakeside homes, and has even been responsible for several drownings.

Eurasian watermilfoil inhibits the uptake of oxygen in lakes and rivers by reducing water movement from lower levels to the surface. It outcompetes native aquatic plants for light and nutrients, eliminating some species and reducing structural diversity. This species is not considered a good food source for waterfowl; it may contribute to flooding and create habitat for mosquitoes.

The plant is difficult and expensive to control once introduced, and it cannot be eliminated from a waterbody once established. It spreads primarily through plant fragments that break off and float to new locations, sink, and grow. It is spread from lake to lake primarily by fragments attached to boats, trailers, and fishing gear.

The most common locations on boats for Eurasian watermilfoil to hitch a ride to a new lake are the boats themselves, the trailer, the motors, the propellers, and the anchor. Drying out of the plant fragments will not necessarily kill them or prevent this species from spreading. They simply rehydrate when returned to water and continue to grow.

To stop Montana lakes from becoming infested with this destructive weed, take the following steps:

- Remove all aquatic plants and animals from boats, trailers, fishing gear, waterskiing equipment, etc.
- Drain lake or river water from your boat.
- Dispose of unwanted live bait on land.

DOUG FREELAND

DOUG FREELAND

Eurasian watermilfoil (left and above) has leaves with 12 to 21 leaflet pairs. Native watermilfoils have 7 to 14 leaflet pairs. Although numbers of leaflet pairs overlap between the two, look for leaflet pairs consistently less than 12 or consistently more than 12. For more photos and information on identification, check the Washington Department of Ecology web page at www.wa.gov/ecology/wq/plants/weeds/milfoil.html.

- Wash your boat, tackle, down riggers, lines, and trailers.
- Be especial careful in inspecting and cleaning your equipment if you've fished or boated in adjacent states and are returning to Montana.

Eurasian watermilfoil may have initially been introduced to this country by releases from aquariums. So make sure never to dump aquarium plants, fish, snails, or any other organisms or water into lakes, streams, or rivers. Many other aquarium plants have the potential to cause the same environmental impacts as Eurasian watermilfoil, so be equally vigilant with those.

In states where Eurasian watermilfoil has become established, control is accomplished through the use of aquatic herbicides, harvesting, hand-pulling, and underwater rototilling (called rotovation). Also, a biological control agent is being studied. This is a milfoil weevil that feeds on the native northern watermilfoil, a plant that occurs naturally in Montana. Studies in Minnesota have shown that milfoil weevils will feed preferentially on Eurasian watermilfoil and suppress its growth.

Boaters and anglers can help keep Eurasian watermilfoil out of Montana by observing the above precautions and calling authorities to report any suspicious vegetation. Our only real hope against invasion of Montana's lakes and rivers by this and other exotic species is awareness. It is critical that introductions of aquatic nuisance species are quickly located while populations are still small and may be eradicated.

For more information, contact the following individuals:

- John Wachsmuth
  FWP, Kalispell; 406-751-4554
  email: jwrl@digisys.net
- Marcy Mack
  Lake County Weed Department
  406-676-5270
- Dick Wernham
  Army Corps of Engineers, Libby Dam
  406-293-7751; email:
  dick.t.wernham@usace.army.mil
- Lou Kuennen
  U.S. Forest Service
  Kootenai National Forest, Libby
  406-293-6211
  email: lkuennen@fs.fed.us
- Leslie Ferguson
  U.S. Forest Service
  Kootenai National Forest, Troy
  406-295-4693
  email: lferguson@fs.fed.us

Montana State Parks Calendar

JULY

8—"Cardboard Cup" Regatta at Spring Meadow Lake State Park
Build and race a cardboard boat to help raise funds for the Montana Wildlife Rehabilitation Center. Call 406-444-4720.

8—Tour of the Night Skies at Council Grove State Park
Learn about constellations, black holes, and the whole universe at night. Call 406-542-5500.

15-16—Bannack Days at Bannack State Park
History comes alive in this celebration of the Montana frontier. Activities include pioneer skill demonstrations, old-time music and food, old-fashioned melodramas and skits, wagon rides, gold panning, dancing, mountain men, and more. Call 406-834-3413.

21-22—Hell Creek Walleye Tournament
For details on entry fees and sign-up, call Joe Herbold, 406-557-2302.

22-23—Big Sky Thunderbirds at Frenchtown Pond State Park
Come watch the Big Sky Thunderbirds fly their beautiful radio-controlled model planes. Call 406-542-5500.

22-23—Weekend of Discovery at Missouri Headwaters State Park
A variety of activities on history, Lewis and Clark, and mountain men. Call 406-994-4042.

29—Living History at Fort Owen State Park
Explore a self-guided museum tour and enjoy history and folklore presented by artists and historians. Call 406-542-5500.

30—Lewis and Clark Caverns "Corks of Discovery" River Float
A 3-hour guided float through the Jefferson River Canyon. Call 406-287-3541.

AUGUST

5—Annual Youth Fishing Tournament at Hell Creek State Park
For details on entry fees and sign-up, call 406-557-2345.

12—Women's Walleye Tournament at Hell Creek State Park
For details on entry fee and sign-up, call Joe Herbold, 406-557-2302.

18-19—Dinner Theater at Makoshika State Park
An outdoor dinner at 5:30 p.m. followed by an original theater production. Call 406-365-6256.

19—Garden City Triathlon at Frenchtown Pond State Park
This event beginning and ending at the park includes a swim, bike ride, and run. Call 406-542-5500.

26-27—Bass Tournament at Hell Creek State Park
For details on entry fee and sign-up, call 406-557-2345.

Readers Respond

Predator Article Okay, but Give Us the Rest of the Story

Montana Outdoors is a great tool to educate people, but we want to hear it all. Your 1991 mountain lion article was good and so was your recent one (May/June 2000), but both shy away from the number of animals killed by predators and the long-range view. How many cougars are there and how many animals do they kill, of which species? Researchers seem embarrassed to openly discuss killing, and predators kill lots of animals. Why hide it? What do 5,000 mountain lions kill?

Wolf researchers are the true masters of trick words; their wolves "interact" instead of kill and eat. One new study will be on how wolves "capture" elk! Capture? Is this like catch and release?

The U.S. Fish and Wildlife Service expects about 3,000 wolves for Montana, but what will 3,000 wolves kill? How does 150,000 elk or deer sound?

Bears, wolves, coyotes, and mountain lions may kill more animals in June/July than January/February, or more animals at night than in daylight. But nobody is looking or certainly not talking. Predators do what predators do—kill stuff, year-round. That's okay, but can we have lots of sport hunters and lots of predators and no change in prey animal numbers? I don't think so!—*Jack Atcheson, Sr., Butte*

Auchly on Thomas

The recent article "Caddis by Night" by E. Donnall Thomas, Jr. was a joy to read. His description of a sunset or trout in a feeding frenzy is plain good writing.

I work for FWP, and I'm one of the writers in *Montana Outdoors'* stable. Well, this plow horse can recognize a thoroughbred anytime.

I imagine, somewhere, an English teacher reads my copy and shouts, "Block that metaphor." Yet, I'm equally sure that same person scans Thomas' prose, nods his or her head and smiles in the way of all English teachers who have found a nugget.

Keep running his stuff.—*Bruce Auchly, Regional Information Officer, Great Falls*

Geez Bruce, we may not know much about horses, but we do know something about writing, and you're no plow horse. We'll ask Donnall to write for us more often, but only if you keep contributing as well.—Editor

Stoner on Auchly

Now you went and did it. The cat is out of the bag...Montana's best kept secret is no longer a secret! I'm speaking of course of Bruce Auchly's splendid article, "In Praise of Little Streams," which appeared in the May/June 2000 issue.

As an avid "crick" fly fisherman, I find nothing more enjoyable than wading up a small creek, fly rod in hand, my faithful Sheltie companion following at a discreet distance, and attempting to outsmart those wary brookies, cutthroats, and rainbows. By using the "catch and release" approach to creek fishing, one can enjoy this pastime all day long.

Like most fishermen, the locations of my favorite creeks will remain anonymous, simply because they are *my* "best kept secret!"—*John L. Stoner, Townsend*

Cantwell on Montana

As an ex-resident (I lived in Butte), I got a tear in my eye and a lump in my throat as I leafed through the excellent May/June issue. It seems as though folks who live in the Treasure State, and leave, remain Montana boosters as long as they live.—*Neil Cantwell, Grand Junction, Colorado*

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We welcome your comments as well as letters to the editor. Please write us at: Readers Respond, Montana Outdoors, 930 West Custer Avenue, P.O. Box 200701, Helena, MT 59620-0701; fax 406-443-4619; e-mail montanaoutdoors @ state.mt.us.

Contributors

Charles

"In a time of crowding and conflict on many of Montana's rivers," says **Alan Charles**, "the quiet waters of the Yellowstone threading peacefully through braided channels of eastern Montana prairie are a delight for floaters in search of solitude." From Huntley, just east of Billings, to its confluence with the Missouri near the North Dakota border, the Yellowstone River offers 337 miles of scenery, wildlife viewing, fishing, and historical attractions. For a complete rundown on when to float, what to bring, and points of interest along the way, turn to "Riding the Roche Jaune" (p. 2). A former Miles City resident who has boated the lower Yellowstone often, Charles is FWP's landowner/sportsman coordinator in Helena.

According to **Bruce Auchly**, chronic wasting disease, a fatal brain disease of elk and deer, has existed for decades in captive and wild deer and elk in Colorado and Wyoming. Last fall, it was confirmed in elk at an alternative livestock ranch in Montana. Thus far it has not been found in free-ranging deer and elk here, but testing is ongoing. To learn more about the disease, Montana's testing program, and what is being done to prevent its spread, read "Chronic Wasting Disease" beginning on page 8. Auchly is an information officer in FWP's Region 4 office in Great Falls.

Lakes in some parts of Montana are becoming more crowded, prompting complaints from boaters, swimmers, anglers, and shoreline residents about motorized use, primarily personal watercraft (PWCs). In his article "Boating Conflicts" (p. 14), **John Fraley** explains the issues and what the Montana Fish, Wildlife & Parks Commission is doing to address them. New regulations are in effect on some waters, says Fraley, and the commision is accepting public comment this summer prior to adopting final rules. Fraley is the department's Region 1 information officer stationed in Kalispell.

Fraley

Lemke

Five years ago the U.S. Fish and Wildlife Service transplanted wolves into the Greater Yellowstone Ecosystem, where they have prospered thanks to abundant prey. Since then, **Tom Lemke**, an FWP wildlife biologist stationed in Livingston, has had an opportunity to learn a little about wolves and a lot about how people react to them: "Some claim wolves have already decimated wildlife populations, creating a biological desert, while others say they are the savior of the entire ecosystem, restoring a pristine balance between plant and animals communities. As in most deep-seated wildlife controversies, biological reality lies somewhere between." For an in-depth look at wolves and how they are likely to affect elk and other wildlife in Montana, read Lemke's article "Wolves, Elk, and People" beginning on page 20.

Stan Bradshaw's first river rafting experience more than 30 years ago began as a lark on a sunny spring day. He and some college buddies rounded up a cheap rubber raft, a few paddles, plenty of beer, and hit the river. Before they knew it the raft had flipped—they were in the water, and in trouble. Luckily they got out alive, and learned a valuable lesson: Don't go river rafting unprepared. Every year, rafting accidents claim lives in Montana—with proper safety precautions, most of these mishaps can be avoided. Since his first ill-fated trip, Bradshaw, who lives in Helena, has become an accomplished canoe racer and instructor, a float guide, and a certified swift-water rescue technician. His article, "Flouting Natural Selection" (p. 26), is a chapter from his new book, *River Safety: A Floater's Guide*. It is available from Greycliff Press, P.O. Box 1273, Helena, MT 59624-1273; phone 406-443-7332.

Bradshaw

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